BPA POWER ADMINISTRATION

Allston to Astoria Rebuild Project

Draft Environmental Assessment

June, 2024

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Abbreviations

AGL	Above Ground Level
APE	Area of Potential Effects
BMP	Best Management Practice
BPA	Bonneville Power Administration
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CZMA	Coastal Zone Management Act
dbh	diameter at breast height
DSL	Oregon Department of State Lands
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
JPA	Joint Permit Application
kV	kilovolt(s)
LUCS	Land Use Consistency Statements
NOAA	National Oceanic and Atmospheric Administration
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OR DOA	Oregon Department of Agriculture
OR DEQ	Oregon Department of Environmental Quality
ODFW	Oregon Department of Fish and Wildlife
ODOT	Oregon Department of Transportation
PCBs	polychlorinated biphenyls
PCP	pentachlorophenol
PEM	palustrine emergent
PFO	palustrine forested

project	Alston to Astoria Rebuild Project
PSS	palustrine scrub-shrub
ROW	right-of-way
SOI	Secretary of the Interior
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service

1 Purpose of and Need for Action

Bonneville Power Administration (BPA) is a federal agency that owns and operates more than 15,000 miles of high-voltage transmission lines. These transmission lines move most of the Northwest's high-voltage power from facilities that generate the power to users throughout the region. BPA has obligations to ensure that its transmission system is safe, reliable, and has sufficient capability to serve its customers.

BPA proposes to rebuild the approximately 22-mile-long Allston-Driscoll No. 2 and the approximately 21-mile-long Driscoll-Astoria No. 1, 115- kilovolt (kV) transmission lines in Clatsop and Columbia counties, Oregon (Figure 1-1 to Figure 1-3). Together, the proposed rebuilding of the two lines is referred to as the Allston to Astoria Rebuild Project (project). The project would include replacing wood-pole and steel structures that support the transmission line and other line components as well as enhancing the access road system.

BPA prepared this Environmental Assessment (EA) pursuant to regulations implementing the National Environmental Policy Act (NEPA) to assess the potential impacts of this proposal on the environment. This EA will be used to determine if the proposal would cause effects of a magnitude that would warrant preparing an Environmental Impact Statement (EIS), or if it is appropriate to prepare a Finding of No Significant Impact (FONSI).

This section of the EA further describes the need for action that has led to the proposal, identifies the purposes (i.e., goals) that BPA is attempting to achieve while meeting the need, and summarizes the public scoping process that was conducted for the EA.

1.1 Need for Action

The Federal Columbia River Transmission System Act directs BPA to construct improvements, additions, and replacements to its transmission system that are necessary to maintain electrical stability and reliability as well as provide service to BPA's customers (16 United States Code [U.S.C.] § 838b(b–d)). BPA needs to ensure the integrity and reliability of the Allston-Driscoll No. 2 and the Driscoll-Astoria No. 1 transmission lines that serve BPA's customers in Northwestern Oregon. The transmission lines consist of structures, insulators, conductors (electrical wires), and other equipment used to transmit power.

The Allston-Driscoll No. 2 and the Driscoll-Astoria No. 1 transmission lines have been in service for approximately 70 years. Most of the Allston-Driscoll No. 2 and the Driscoll-Astoria No. 1 transmission line structures are constructed out of wood. In general, wood poles for transmission lines have a service life of 55 to 60 years, at which point they are usually replaced due to age, rot, or other forms of deterioration. Many structures on the transmission lines have reached the end of their service life, are physically worn, and, in places, are structurally unsound. As the structures age, repairs are needed more frequently; emergency repairs often do not allow time to accommodate planning efforts and are not an efficient and cost-effective approach to maintaining the transmission line. Also, as conditions worsen, actions may need to be taken on a more piece meal project-by-project basis.

The road system that BPA uses to access the transmission lines is in poor condition with uneven and eroded travel surfaces, insufficient water control (e.g., water bars, drain dips, and culverts), and overgrown vegetation, making scheduled maintenance and emergency repairs unsafe. BPA needs safe, prompt access to each transmission structure for transporting crews, materials, and equipment in order to rebuild the line, for ongoing maintenance, and for emergency repairs.

Figure 1-1. Project Vicinity Map

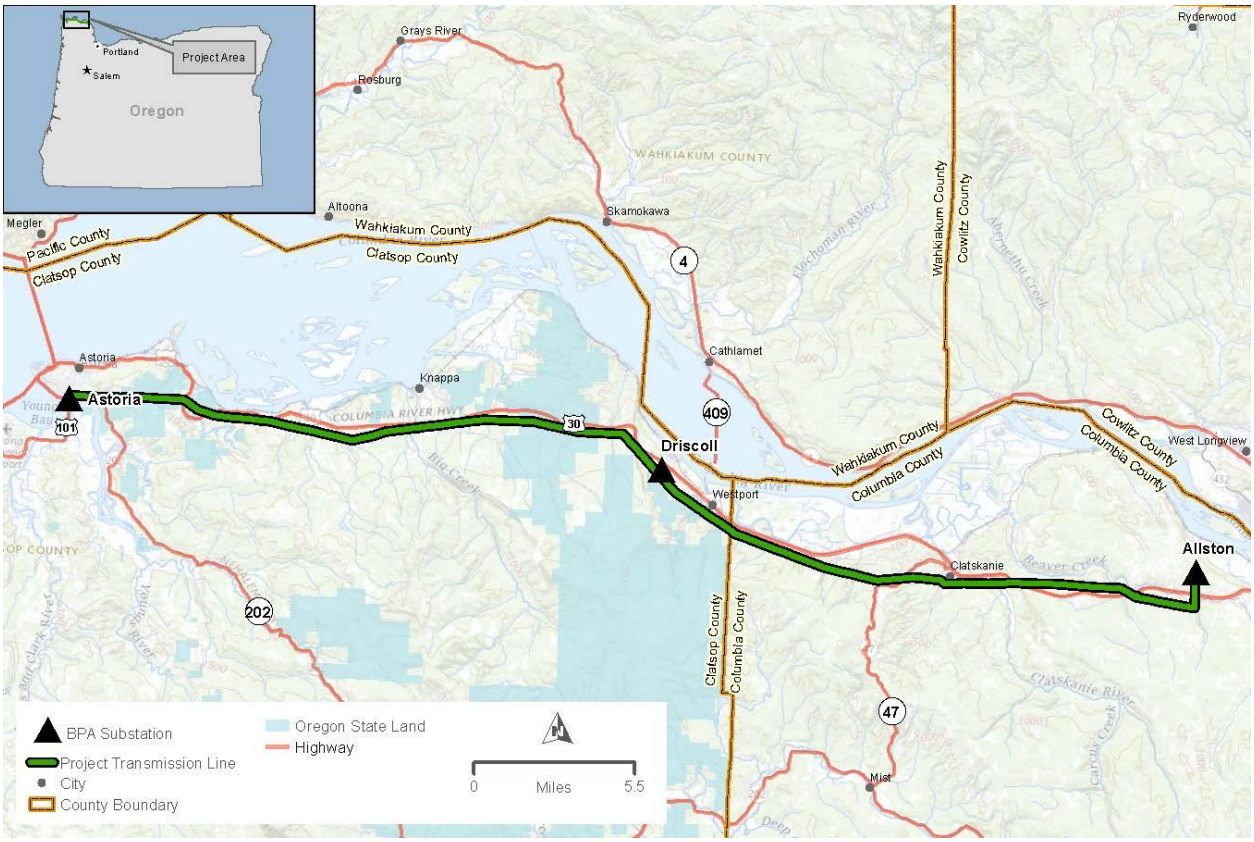


Figure 1-2. Allston-Driscoll No. 2 Transmission Line

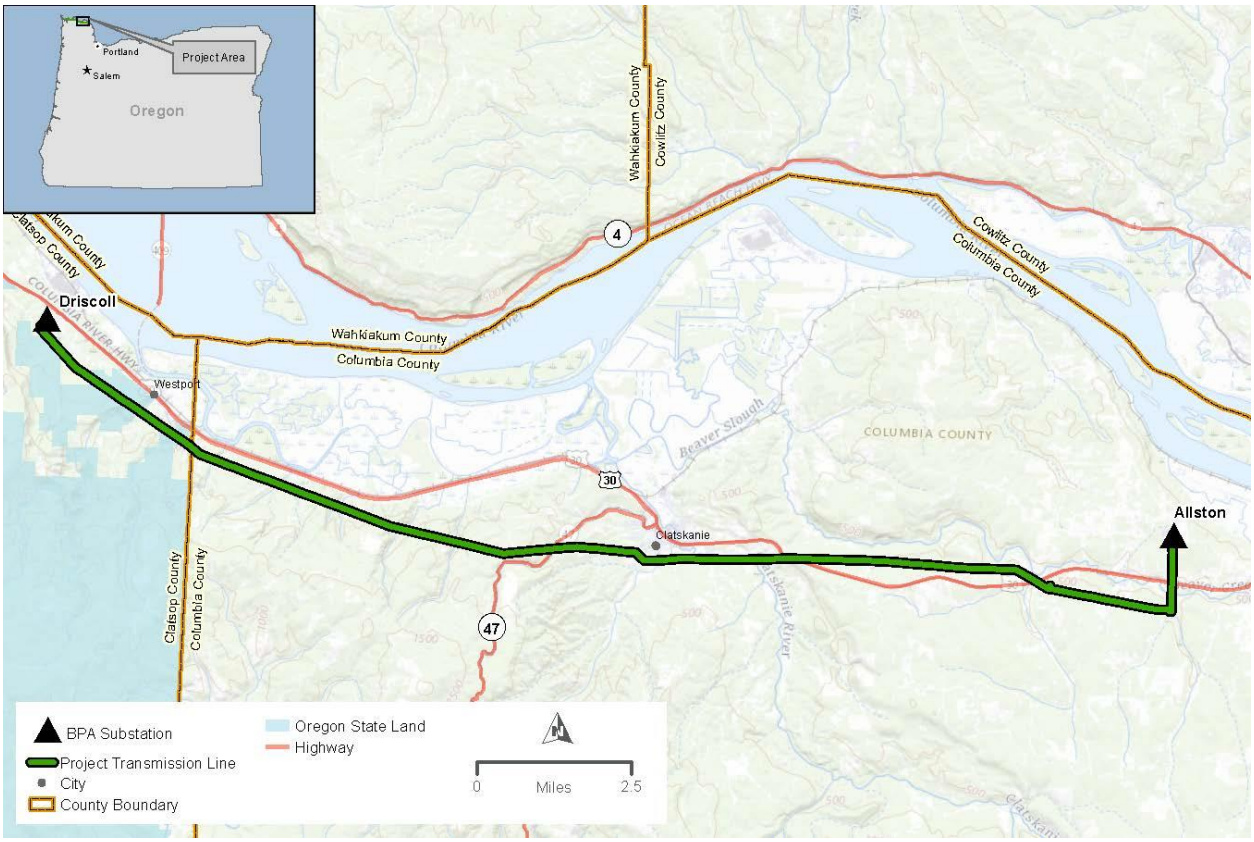
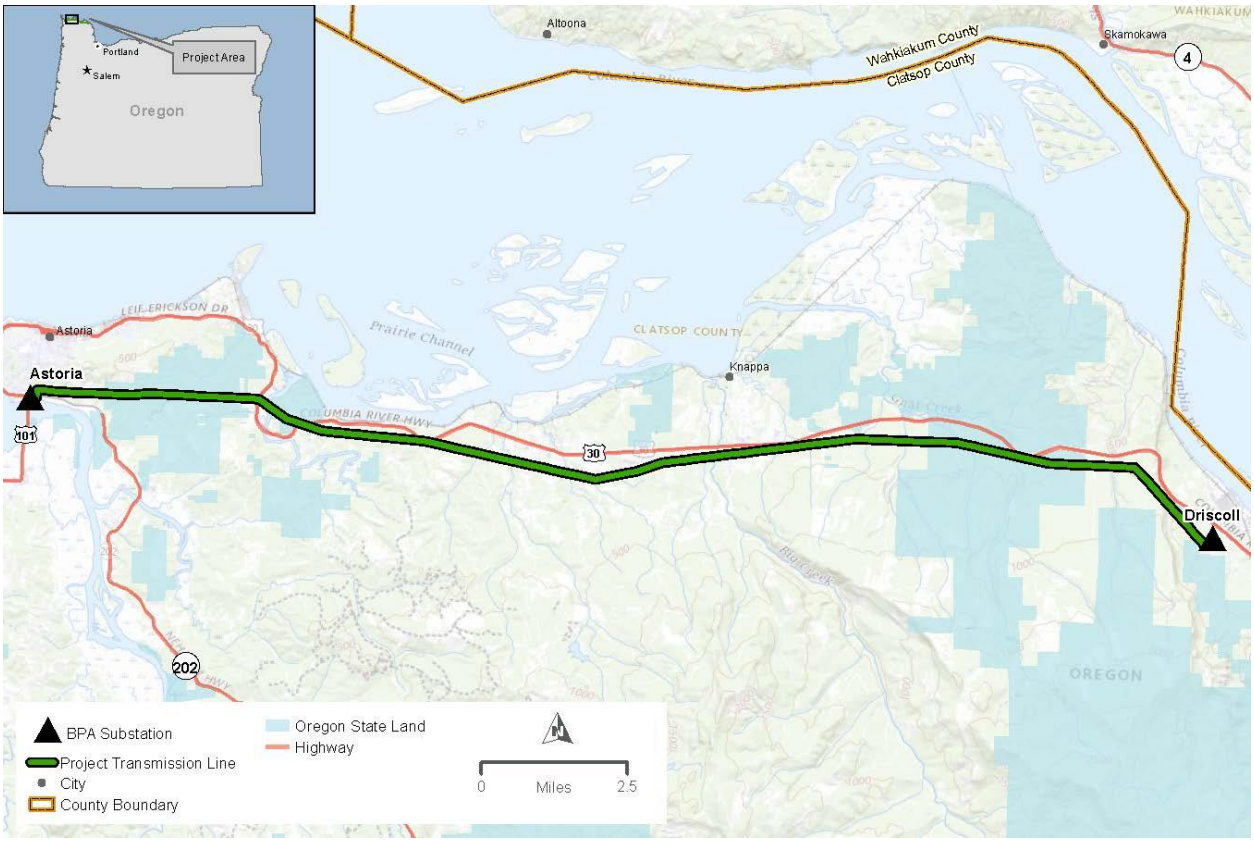


Figure 1-3. Driscoll-Astoria No. 1 Transmission Line



1.2 Purposes

In meeting the need for action, BPA identified the following purposes:

- Ensure that transmission system public safety and reliability standards set by the National Electric Safety Code and North American Electric Reliability Corporation are met.
- Continue to meet BPA's contractual and statutory obligations to supply safe, reliable power to serve its customers.
- Minimize impacts on the human environment.
- Demonstrate cost-effectiveness by rebuilding the transmission line instead of performing repairs on an as-needed basis.

1.3 Public Involvement

To help determine issues to address in the environmental review, BPA conducted public outreach as part of its scoping for the preparation of this EA. The public comment period began on May 6, 2022, and BPA accepted comments until June 6, 2022. On May 6, 2022, BPA mailed letters to potentially interested and affected persons, agencies, tribes, and organizations. The public letter provided information about the project, requested comments on issues to be addressed in the environmental review, and described how to comment (via mail, fax, telephone, and BPA's website). BPA also posted the public letter on the following project website, which it established to provide information about the project:

http://www.bpa.gov/nepa/allston-to-astoria. Consistent with the Council on Environmental Quality's (CEQ) November 30, 2022 Memorandum and Guidance for Federal Departments and Agencies on Indigenous Knowledge, BPA engaged Tribes and Indigenous Peoples for information and perspectives regarding environmental, cultural, and community impacts. BPA determined that the following Tribes have a potential interest in this project: the Confederated Tribes of the Grande Ronde and the Confederated Tribes of Siletz. BPA requested comments on the Proposed Action (the project) from the Tribes, as well as comments on potential cultural resources to help shape investigations. BPA received two comments during the comment period and posted them on the project website. Comments were focused on questions related to the NEPA environmental review process.

2 Proposed Action and Alternatives

This section describes the existing transmission line, the Proposed Action, and the No Action Alternative. It also compares how the Proposed Action and the No Action Alternative meet the project purposes, described in Section 1.2, and summarizes the potential environmental effects of the alternatives. Figure 1-1 in Chapter 1 shows the locations of the Allston-Driscoll No. 2 and Driscoll-Astoria No. 1 transmission lines.

2.1 Existing Transmission Line

Together, the Allston-Driscoll No. 2 and Driscoll-Astoria No. 1 transmission lines create a single continuous approximately 42-mile corridor from the Allston Substation near Allston, Oregon, to the Astoria Substation near Astoria, Oregon (Figure 1-1). Substations are fenced sites that contain the terminal switching and transformation equipment needed at the ends of a transmission line. The transmission lines and access roads cross through Columbia and Clatsop counties, generally between the communities of Allston and Astoria.

The project transmission lines are located in a 65- to 250-foot-wide shared right-of-way (ROW) corridor with the Allston-Driscoll No. 1, Allston-Clatsop No. 1, and Driscoll-Naselle No. 1 transmission lines. BPA has easements (authorization to use land owned by another) or other authorizations with underlying landowners and land managers for all of the transmission line ROW and access roads. Most of the transmission lines cross hilly terrain through privately-owned parcels and some state-managed forestry lands. The existing Allston-Driscoll No. 2 and Driscoll-Astoria No. 1 transmission lines are made up of steel and wood monopoles, two- and three-pole H-frame structures, and steel lattice structures. Many of the wood-pole structures have guy wires to increase structure stability. The lines each have three conductors (electrical wires) and small stretches of overhead ground wire near the substations (protective wire strung above the conductors to shield them from lightning).

Table 2-1 describes the existing characteristics of the corridor.

Table 2-1. Existing Corridor Characteristics

Characteristic	Measurement
Corridor Length	42.4 miles
Corridor ROW Width	65 to 250 feet
Wood Monopole Height	55 to 70 feet above ground level (AGL)
Wood and Steel H-Frames Height	40 to 105 feet AGL
Steel Lattice Structures	90 to 110 feet AGL
Operating Voltage	115 kV
Number of Conductors	Allston-Driscoll No. 2: 3 Driscoll-Astoria No. 1: 3

Figure 2-1. Existing Two- and Three-Pole Wood Structures

Two-pole structure

2.1.1 Ongoing Maintenance and Vegetation Management

BPA conducts routine periodic inspections, maintenance, and vegetation management of its 15,000 miles of high voltage federal transmission system in the Pacific Northwest. When transmission line, access road maintenance, or vegetation management is required for a BPA transmission line, BPA conducts an environmental review process for those site-specific maintenance activities, as needed.

BPA has operated and maintained the Allston-Driscoll No. 2 and Driscoll-Astoria No. 1 transmission lines since the line was built approximately 70 years ago. This ongoing operation and maintenance would continue whether or not the Proposed Action is implemented. However, because the Proposed Action is essentially a major maintenance project and would replace worn parts of the existing transmission line and improve the access roads, the need for future maintenance and repairs would be expected to be less frequent and on a smaller scale than currently required.

BPA conducts vegetation management along the ROW every 3 to 5 years to keep vegetation a safe distance from the conductor, maintain access to structures, and control noxious weeds. Vegetation management is guided by BPA's *Transmission System Vegetation Management Program Final Environmental Impact Statement/Record of Decision* (BPA 2000). Depending on the vegetation type, environment, and landowner, a number of different vegetation management methods could be used: manual (e.g., hand-pulling, clippers, chainsaws), mechanical (e.g., roller-choppers, brush-hog), or chemical (e.g., herbicides).

Vegetation management generally includes keeping trees and other tall growing vegetation from growing within the transmission line ROW, conducting invasive plant control, and removing trees inside

and outside the ROW that have the potential to grow or fall into the line. BPA identifies trees requiring removal by evaluating tree height and growth potential, how the tree leans, stability, health (e.g., root pathogen damage), and whether it is located in areas with severe storm damage potential. Much of the transmission line ROW passes through forested areas where tree removal is continually evaluated.

2.2 Proposed Action

The Proposed Action would rebuild the approximately 22-mile-long Allston-Driscoll No. 2 and the approximately 21-mile-long Driscoll-Astoria No. 1 transmission lines. Along both lines, the work would include:

- Replacing the existing conductors.
- Replacing H-frame wood and steel pole structures with H-frame wood and steel pole structures, wood monopoles with single wood pole structures, and two existing steel lattice structures with steel lattice structures.
- Replacing all insulators, guy anchors and strands, disconnect switches, and ground wires.
- Installing counterpoise and ground rods for all new and replaced structures.
- Installing fall protection on some existing steel lattice structures and existing steel monopole structures.
- Clearing vegetation in the transmission line ROW and removing danger trees in accordance with BPA Vegetation Clearing Policy STD-DT-000090.
- Establishing temporary staging areas and material yards and tensioning sites for pulling and tensioning conductors.
- Reconstructing, improving, and constructing new access roads inside and outside of the ROW.
- Replacing two 115-kV disconnect switches at the Delena Substation on existing structures.
- Installing three new surge arresters and support structures at the Allston Substation.

Some steel monopole and steel lattice structures would not be replaced, and fiber optic cable would not be added to the line. The transmission lines would remain in the existing ROW and would continue to be operated at 115-kV. Table 2-2 summarizes project elements.

Table 2-2. Summary of Project Elements

Project Element	Quantity
Total Number of Structures to be Replaced	**255**
Wood monopoles	12
Wood and steel H-frames	241
Steel lattice structures	2
Total Number of New Structures to be Added	**2**
H-frames	2
Access Roads (miles)	**Approximately 50 miles**

Project Element	Quantity
New construction	Approximately 0.4 mile
Reconstruction	Approximately 6 miles
Improvement	Approximately 27 miles
Direction of travel (existing roads that do not require improvements)	Approximately 17 miles
Total Number of Gates	**5**
New	3
Repair	2
Total Number of Bridges and Fords	**4**
New	1 bridge; 1 ford
Repair	1 ford
Improve	1 ford
Total Number of Culverts	**54**
New/Replace	36
Repair	4
Clean	14
Vegetation Removal	**123 acres vegetation, 761 danger trees**
Acreage of low-growing vegetation to be cut or treated within ROW	123
Number of danger trees to be removed within or outside ROW	355 inside the ROW; 406 adjacent to the ROW

2.2.1 Project Components

Structure Replacement

The transmission line structures are individually numbered by line mile and structure within the line mile (e.g., Structure 3/4 is the fourth structure in the third mile of the transmission line). Along Allston-Driscoll No. 2, Structure 1/1 is at the Allston Substation and Structure 22/7 is at the Driscoll Substation. Along Driscoll-Astoria No. 1, Structure 1/1 is at the Driscoll Substation and Structure 22/10 is at the Astoria Substation.

The project would replace approximately 241 wood and steel H-frame structures with wood and steel H-frame structures; 12 wood monopoles with single wood pole structures; 2 existing steel lattice structures with steel lattice structures; and all insulators, cross-arms and braces, dampers, guy wires and anchors, disconnect switches, and ground wires. Figure 2-2 is a graphic of the proposed replacement structures. The existing wood structures are between 70 and 100 feet tall. Five replacement pole structures' maximum height would be over 100 feet; three of those replacement structures would reach 115 feet. Cross arms hold up the conductors; cross braces form an "X" between wood poles for stability; and dampers minimize vibration of conductors. These components would be replaced on the new structures.

The two steel lattice structures being replaced would include stringing new conductor wire over the John Day River and the associated Clatsop 14 – Lager 44 levee system (Clatsop County Diking District No. 14) between structure 18/4 and 18/5 of the Driscoll - Astoria transmission line. Structure 18/4 would be replaced in the same location as the existing structure and would be a height of 115 feet, and 18/5 would be replaced 50 feet ahead-on-line of the existing structure with a height of 135 feet. The heights of each structure would be approximately 20 feet taller than the existing structures to accommodate new conductor height requirements for spanning a navigable water. A geotechnical investigation would be performed to design new concrete pier footings for the John Day River crossing structures and to support access road design; two borings for the river crossing structures 18/4 and 18/5 are anticipated.

Guy wires attach at various points along the structure and are anchored at the ground (by plate or screw anchors) to lend stability to structures. If anchor locations need to be moved, existing guy wires would be cut off below grade and the anchors left in place. New anchor locations would be 3 to 10 feet away from replaced structures. Holes for plate anchors would be approximately 10 feet deep by 4 feet square (approximately 16 square feet of disturbance per anchor). A trench approximately 6 to 12 inches wide by 2 to 3 feet deep would be dug so the anchor rod can be connected to the plate anchor. Plate anchors would be set in crushed rock, and the remainder of the hole would be backfilled with native soil. Helical anchors, which are screwed directly into the soil, minimize the disturbance area and generate no spoils.

Replacement of tangent structures, or those where the overhead conductor does not change direction and continues in a straight line from one structure to another, would be constructed as close as possible to the existing structures. In practice, this would shift the location of the holes for the new structures approximately 5 to 10 feet away from existing structures within the ROW. New holes would be dug to a depth of 7 to 12 feet with up to a 4-foot diameter. Depending on the site conditions at each pole site, the existing poles would either be cut off 2 feet below ground level and left in the existing holes, or the poles would be completely removed.

Replacement of angle structures, or those where the overhead conductor line changes direction, would be replaced in the holes of existing poles. The holes would be cleaned out and re-augured slightly deeper to a total depth of 7 to 12 feet with up to a 4-foot diameter to meet current pole set depth standards. Excess soils excavated from existing wood-pole holes may contain wood preservatives and would be properly handled, removed, characterized, transported, and disposed of according to applicable regulations at a permitted facility that accepts those materials. If the existing hole could not be reused, then the new structure would be located as close to the existing hole as feasible.

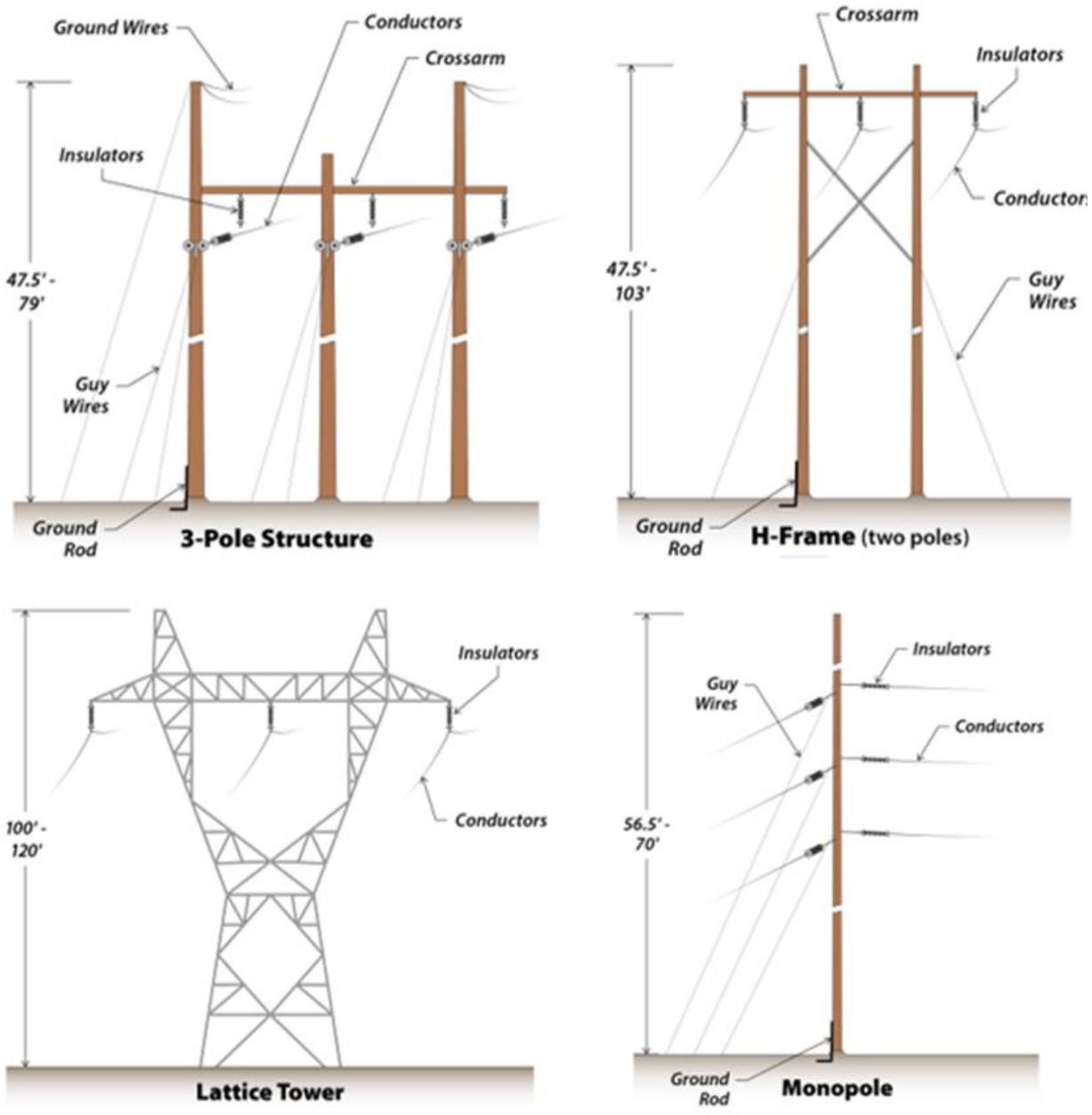
Structure replacement activities at each location would temporarily disturb an area approximately 100 feet by 100 feet (0.2 acre). The temporary disturbance area could be reduced to a 25-foot radius from the structure center point (0.05 acre) in certain circumstances (e.g., where work is near sensitive sites such as wetlands). The permanent disturbance area around each structure would be an average area of 15 feet by 15 feet occupied by structures without guy wires and approximately 30 feet by 50 feet for structures with guy wires.

Permanent structure landings used to provide space for equipment and vehicles during construction and maintenance would be constructed at 18 structures and would be improved at dead end structures and other locations. These landings are typically graded and rocked. If terrain allows, the landings would be 30 feet wide by 40 feet long, but this area may be reduced in areas of steep terrain, restricted access, or

sensitive resources. Each landing would add approximately 0.05 acre of permanent disturbance area. For structures located in gentler terrain, the existing areas around the structures would be used as landings without any additional work.

Like most wood poles used for utility or telephone lines, the replacement wood poles would be treated with a preservative called pentachlorophenol (PCP) to lessen wood rot and extend the life of the poles.

Figure 2-2. Proposed Structures



Replacement of Conductors, Overhead Ground Wire, and Counterpoise

Conductors are the wires on the structures that carry the electrical current. The three conductors on each line would be replaced with new non-reflective conductors. Insulators are strings of bell-shaped

devices that prevent electricity from moving from the conductors to the structures and traveling to the ground. The existing ceramic insulators would be replaced with glass insulators that can be more reflective depending on the angle of the viewer and the sun. The connecting hardware, which connects the insulators to the structures and conductor to the insulators, would also be replaced.

For safety reasons, the National Electric Safety Code establishes minimum conductor heights. BPA requires the conductors to be at least 26 feet from the ground, which exceeds National Electric Safety Code's minimum conductor height of 20.5 feet for 115-kV construction, for most of the transmission lines because of past safety and landform variation concerns. Additional clearance would be provided over roadway and river crossings.

Overhead ground wire that protects substation equipment from lightning strikes would be replaced on the first 0.5 mile of the existing lines out of the Astoria, Allston, Driscoll, and Delena substations.

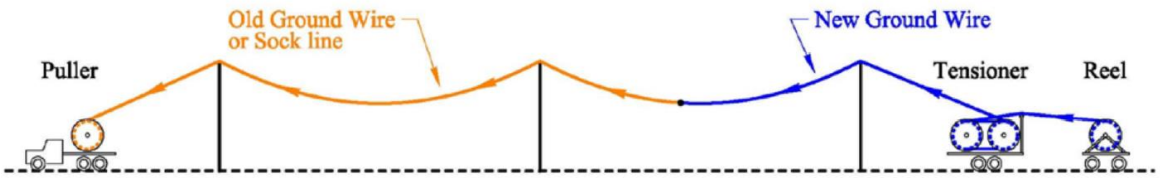
Replacement hardware components would be consistent with the *Suggested Practices for Avian Protection on Power Lines* prepared by the Avian Power Line Interaction Committee (APLIC 2006). Bird diverters, which are devices placed on a transmission line conductor or overhead ground wire to help birds see power lines and avoid potential collisions, would be placed on spans where an increased risk of bird strikes exists (e.g., wetlands and rivers) and where technically feasible. Perch deterrents, which are devices that prevent raptors from using tall structure as hunting platforms, would be utilized along the corridor, as technically feasible.

A series of wires, grounding rods, or both (called counterpoise) would be buried in the ground at each structure replacement location. These wires are used to establish a low-resistance path to the earth for lightning protection. Counterpoise would be installed in trenches approximately 30 inches deep and 24 inches wide and vary in length from 15 to 100 feet, extending linearly below the conductors.

Pulling/Tensioning Sites

The conductor and overhead ground wire would be installed by establishing pulling/tensioning sites at the beginning and end of each identified pulling section (Figure 2-3). These sites are used for pulling and tightening the conductor and overhead ground wire cables to the correct tension once they are mounted on the transmission line structures. Sites selected can accommodate pulling and tensioning equipment but may need to be cleared of interfering vegetation (using a chainsaw, mowers, brushing machines, heavy equipment, or hand tools) to position pulling and tensioning equipment. Each of these sites would disturb an area approximately 200 feet by 100 feet (approximately 0.5 acre). The project would likely need approximately 41 tensioning sites in total.

Figure 2-3. Typical Stringing Operation



Delena Substation Disconnect Switch Replacement

Two disconnect switches at the Delena Substation would be replaced. Disconnect switches are power system switches used for changing connections in a circuit (open or closed) or for isolating a circuit or piece of equipment from the source of power. The disconnect switches are located in the rocked and fenced substation yard. Ground disturbance would be minimal for these replacements as construction equipment would install the new switches using the existing switch stands at their existing locations.

Allston Substation Surge Arrester Installation

Three new surge arresters and support structures (footings) would be installed at the Allston Substation. Their purpose is to safely divert surge energy to earth and ensure that the resulting voltage remains low enough so as not to damage the insulation of the associated devices from the effects of over-voltages. Over-voltages occur when there is an electrical surge, such as from lightning strikes, and the voltage amount within the system exceeds what the system is designed for. The surge arresters would require standard concrete footings and would be constructed in previously disturbed areas of the rocked and fenced substation yard.

Access Roads

The system of roads that provides access to the transmission line (access roads) would be improved to support construction equipment during the construction phase as well as improve access for future operations and maintenance activities. The project would require improvement of approximately 27 miles of road that would require light gravelling; reconstruction of approximately 6 miles of roads that would require grading or more extensive upgrades; and construction of approximately 0.4 mile of new roads. In addition, there are approximately 17 miles of existing direction-of-travel roads where improvements are not anticipated, and the roads would be used as is. A small amount of temporary direction-of-travel, located within upland areas throughout the project, may use timber mats to provide access and minimize rutting. After construction is completed, the matting would be removed, and the areas would no longer be used as access roads.

The access road system consists of a mix of permits or access road easements across public and private land and are located within the transmission line ROW as much as possible. Generally, BPA obtains 50-foot-wide easements for new or reconstructed access roads and 20-foot-wide easements for existing or improved roads. In some cases, BPA purchases easements to structures where no access road is located, for the purpose of gaining permanent legal rights to access the structure or to construct temporary or permanent access roads, as needed, for periodic or emergency maintenance.

Typical BPA access roads are built 14 feet wide with an additional 3-foot offset from each side of the road for slopes or drainage ditches. The total disturbance width for typical BPA access roads is approximately 20 feet. Additional widths would be disturbed during access road construction in areas with curves or on steep slopes because cut and fill would be required. In specific wetland areas, the access road widths are reduced to 12 feet and the offsets on either side are reduced to 2 feet for a total area of disturbance of 16 feet to minimize temporary and permanent impacts. The maximum depth of anticipated ground disturbance with new or reconstructed road work is 5 feet. BPA's road standards include water bars, drain dips, and cross drain culverts to manage surface water runoff.

Three gates would be replaced and two gates would be repaired at the entrances to access roads to prevent public access to private lands and to the transmission line ROW. Gate locks would be coordinated with appropriate landowners to ensure that both BPA and the landowner can unlock them.

Thirty-six new/replacement culverts would be installed at existing stream or drainage crossings, 4 existing culverts would be repaired, and 14 culverts would be cleaned. The disturbance footprint for culvert installation is estimated to be 50 feet wide (along the waterbody) and 150 feet long (along the road) for 7,500 square feet, or 0.17 acre at each crossing, with a required excavation depth of 1 to 2 feet. Construction would occur during periods of low or no flow and within designated in-water work windows. The use of equipment in streams would be minimized. All culverts would be designed and installed to meet desired riparian conditions. Culvert slope would not exceed stream gradient. Typically, culverts would be partially buried in the streambed to maintain streambed material in the culvert. Temporary sandbags or other non-erosive material would be placed around the culverts to prevent scour or water flow around the culvert. Adjacent temporary and permanent sediment-control structures such as silt fences, check dams, rock armoring, or riprap may be necessary to prevent erosion or sedimentation.

One new approximately 40-foot-long access road bridge would be constructed. The bridge would likely utilize a box culvert or arch culvert. The disturbance footprint for bridge installation is estimated to be 50 feet wide (along the waterbody) and 150 feet long (along the road) for 7,500 square feet, or 0.17 acre of disturbance. Construction would require excavation approximately 1 foot below the streambed during construction.

The Proposed Action would also repair one existing ford, improve one existing ford, and construct one new ford. The disturbance footprint for ford installation is estimated to be 20 feet long (along the road) and 6 feet wide (along the waterbody) for 132 square feet or 0.003 acre of disturbance. Construction would require excavation of approximately 1 foot below the streambed during construction. Geotextile fabric and gravel would be placed in the excavation area to allow for vehicles to cross the waterbody.

Vegetation Removal

As part of the project, vegetation would be removed to facilitate construction and ensure safe operation of the line. A total of approximately 123 acres of grasses, low-growing shrubs, and agricultural crops would be temporarily disturbed or cleared for construction activities. Trees identified for removal outside the ROW are called “danger trees” because they have the potential to fall, grow into, or grow too close to the conductor and cause flashovers or line outages. Removal of trees as described in this EA represents tree cutting or topping; trees may or may not be removed depending on landowner preferences. Up to 761 danger trees could be cut along the transmission line ROW (355 inside the ROW and 406 outside the ROW). Additional trees identified during construction would be reviewed by BPA prior to removal.

All areas disturbed by tree clearing along the edges of the transmission line ROW and access roads and in pulling and tensioning sites would be reseeded following construction (trees would be allowed to regrow in areas located off the ROW). BPA would use a seed mix with a diversity of native species from a source close to the project corridor.

2.2.2 Construction Methods

The existing transmission line would be taken out of service temporarily, and existing conductors, insulators, and attachment hardware would be removed. The conductors would be reeled onto spools. While structures are being replaced, typically one bucket truck, one excavator, two cranes, and one dump truck would be working at the site. Once the new poles and hardware are installed, pulleys (travelers) would be installed on the structures and a sock line pulled through each pulley. The sock line would be manually installed with a bucket truck or by a lineman climbing up the structure. At the tensioning site, the sock line would be used to pull a heavier line through the travelers, and eventually the conductor itself would be attached to this line, strung into place, tensioned, and connected to the insulators and hardware. Temporary guard structures, which are temporary wood-pole structures with cross arms placed on either side of a feature needing protection (distribution lines, roads, railroad crossings, navigable rivers), would be installed to catch conductors or ground wire in the unlikely event that the conductors/wires fall while being removed or installed. While work is being done on access roads, any combination of dump trucks, rollers, graders, bulldozers, and excavators would be at the site.

The Proposed Action includes the potential for heavy-duty helicopters to bring in replacement poles if there are access issues in the corridor that prevent the use of ground-vehicle access. There is no need for any work on foot that would require trail access. Therefore, no trail work would be necessary to access the ROW. Except when avoiding sensitive areas (such as marbled murrelet habitat, residences, and schools) or where prohibited by the Federal Aviation Administration, helicopter flight paths would follow BPA's ROW when close to the project corridor. Fly yards or refueling areas would not be needed, as helicopter use would be limited to single pole replacements in areas with difficult access. Helicopters would come from nearby airports and use the staging yards already developed for the project.

Staging Areas and Material Yards

Temporary staging areas and material yards, usually placed outside of the transmission line ROW and in previously disturbed areas, would be used to store and stockpile wood poles and materials, trucks, and other equipment during construction. Each staging area and material yard would occupy up to 8 acres based on the area needed to accommodate wood poles and other materials.

2.2.3 Construction Workforce and Schedule

The proposed project would be constructed primarily by contract personnel. The construction workforce would consist of laborers, craftspeople, supervisory personnel, support personnel, and construction management personnel who would perform the construction tasks. The projected number of construction workers includes approximately 50 personnel.

The construction schedule would depend on the completion and outcome of the environmental review process, including the duration of regulatory agency reviews, consultations with Tribes, and timing of permit and consultation approvals. Construction is anticipated to require 2 years and would be completed sequentially from one line to the other.

The following seasonal construction restrictions would be implemented for the Proposed Action to avoid or minimize impacts on fish and wildlife (see Section **Error! Reference source not found.**, Best Management Practices and Mitigation Measures):

- In-water work: Conduct in-water work between July 15 and September 15 for all streams east of Hunt Creek (near Driscoll-Astoria Structure 4/1) and between July 1 and September 15 for all streams west of Hunt Creek.
- Potentially suitable marbled murrelet habitat is located adjacent to the project ROW and generally extends from Structures 19/3 to 20/2 and 20/4 to 21/1 on the Allston-Driscoll line and from Structures 4/4 to 7/2 and 20/4 to 21/5 on the Driscoll-Astoria line. During the nesting period (April 1 to September 23), all construction activities (e.g., chainsaw activity, road improvement or reconstruction, culvert replacement or installation, and structure replacement) within 110 yards of suitable and occupied habitat would begin 2 hours after sunrise and end 2 hours before sunset during the nesting period. Human presence, staging, and vehicle use of existing heavily used roads can occur during the nesting period without daily timing restrictions as long as no heavy equipment is used.
- Migratory birds: Tree removal would not occur between February 1 and August 30 to avoid impacts to nesting birds.

2.3 No Action Alternative

Under the No Action Alternative, BPA would not rebuild the transmission line or upgrade access roads as a single coordinated project. Construction activities described under the Proposed Action would not occur. However, the reliability and safety concerns that prompted the need for the Proposed Action would remain. BPA would continue to operate and maintain the existing transmission line in its current condition, replacing failed conductor fittings, replacing aged and rotting structures as they deteriorate, maintaining access roads to allow access to structures on an as-needed basis, and managing vegetation for safe operation.

Given the current poor condition of the transmission line, the No Action Alternative would likely cause more frequent and more disruptive maintenance activities than have been required in the past. It might be possible to plan some repairs, but many would likely occur on an emergency basis as the transmission line continues to deteriorate.

The overall scale and scope of the repairs under the No Action Alternative would be smaller than what is planned under the Proposed Action. The maintenance program addresses immediate needs to keep the transmission line functioning and would likely not include more comprehensive improvements such as access road work to improve water runoff, fish-passable culvert replacements, or conductor replacement. Access road work under the No Action Alternative would be limited to enhancements necessary to allow access to specific structures for as-needed repairs and maintenance.

2.4 Comparison of Alternatives

The potential impacts of the Proposed Action and No Action Alternative, summarized in Table 2-3, are based on the analysis presented in Chapter 3 for soils and geologic hazards; vegetation; water resources floodplains, and fish; wetlands; wildlife; and cultural resources. The remaining resources were determined not applicable to the Proposed Action, would have no impact, or would have only an extremely small, insignificant impact on the resource, as described in Chapter 3. Because there would be

no or negligible impacts expected to recreation, land use, visual resources, air quality, and greenhouse gas emissions, resources from the Proposed Action, they have not been evaluated further.

Table 2-3. Comparison of Potential Environmental Impacts

Resource	Alternative	Potential Impacts
Soils and Geologic Hazards	Proposed Action	Impacts on soils would be **low** and would occur from auguring of structure holes; construction of landings; removal of vegetation; temporary soil piling; compaction or rutting from heavy equipment; spreading of excess soils around the base of the structure; burying guy wire anchors; construction, reconstruction, or improvement of roads; compaction in areas used as staging areas, material yards, and pulling/tensioning sites; or potential contamination from wood-pole preservative or accidental spills from equipment. BMPs would be used in all areas of ground disturbance to minimize impacts to soils. Pole wraps would be used to limit contamination from wood-pole preservatives. Some structure work areas and access road work areas are located within high landslide risk areas. However, the risk for structures to be impacted by landslides is **low** as geotechnical BMPs would be implemented to minimize the potential risks.
Soils and Geologic Hazards	No Action Alternative	Impacts would be similar to those of the Proposed Action (**low**) but spread out over time as emergency repairs are needed. Emergency repairs during wet seasons could increase risk of erosion and soil compaction.
Vegetation	Proposed Action	Construction activities would require clearing and crushing of vegetation, causing damage to plants, including some plant roots and removal of danger trees. Impacts in and adjacent to the transmission line ROW would be **low-to-moderate**. Project construction activities would temporarily disturb approximately 110 acres and permanently disturb approximately 4.5 acres of vegetation. Most construction would occur in previously disturbed sites where vegetation would be allowed to regrow. Approximately 761 danger trees would be cut within and adjacent to the transmission line ROW. There is low potential for special-status plants to be impacted because either suitable habitat is lacking or identified populations would be avoided. Construction activities would increase the potential for the spread of invasive plants.
Vegetation	No Action Alternative	Impacts would be similar to those of the Proposed Action (**low-to-moderate**) during maintenance activities because they would likely increase as structure repair or replacement and road work are required. Emergency maintenance, especially during the wet season, could limit the ability to avoid sensitive plant species or sensitive habitats. Emergency repair activities could also require unplanned vehicle use through existing noxious weed infestations, potentially allowing the spread of noxious weeds.

Resource	Alternative	Potential Impacts
Water Resources, Floodplains, and Fish	Proposed Action	Implementation of the Proposed Action would result in **low** impacts on water resources, floodplains and fish. Construction activities occurring in streams would be minimal with BMPs put in place to minimize the potential for impacts to streams. **Low** impacts on groundwater quality during construction and over the long term could occur from the accidental release of hazardous chemicals used during construction (e.g., fuels, lubricants, solvents), the removal of existing creosote-treated wood poles and creosote-contaminated soil excavated from existing structure holes, and the leaching of PCP from new PCP-treated wood poles into groundwater. Mitigation measures would be used to minimize the spread of PCPs and petroleum products, including proper handling and disposal of creosote-treated wood poles and creosote-contaminated soils; spill prevention, containment, and cleanup; and wood-pole storage methods to minimize the risk to groundwater from the accidental release of hazardous chemicals. In addition, pole wraps would be used for placement of any chemically treated poles in wetlands, streams, or the 100-year floodplain, as described in Table 2-4. This would minimize the potential for PCP to leach into groundwater. No new impacts on floodplains would occur as the transmission line ROW is already cleared in work locations within the 100-year floodplain and there would be no change to the floodplains current ability to store and retain water. Temporary impacts on fish could occur during construction; however, all work at stream crossing structures would occur within approved in-water-work windows to avoid periods in which fish are likely to be present. Site isolation, dewatering, and diversion of flows would be required to minimize the downstream transport of turbid water if there is flowing water present at the time of construction. BMPs including erosion and sediment control measures at these work areas would contain overland flow and typically prevent sediment from entering fish habitat, minimizing temporary impacts from construction activities. All new culverts that would be installed are in intermittent, non-fish-bearing streams. Seven culverts would be replaced, nine culverts would be repaired, one new bridge would be constructed, and one ford would be repaired in fish-bearing streams; however, only three of these support coho salmon or steelhead trout. Replacement and repair of the fish-bearing stream culverts would maintain or improve fish passage and fish access to upstream aquatic habitats. Increases in stream water temperatures could temporarily result from shrubby vegetation removal within the work footprints, although no trees would be removed. Vegetation, including shrubby species, is expected to regrow quickly because the areas of vegetation disturbance in riparian areas would be reseeded with a mixture of native shrubs and forbs. Culvert replacements in fish-bearing streams would not permanently remove or degrade fish habitat and with BMPs and mitigation measures implemented, impacts would be **low**.

Resource	Alternative	Potential Impacts
Water Resources, Floodplains, and Fish	No Action Alternative	Impacts would be **low-to-moderate** depending on timing and location. As existing in-stream structures (i.e., culverts, fords, and bridges) and access roads continue to deteriorate, and emergency structure repair and replacement or road work in streams is required, impacts could occur.
Wetlands	Proposed Action	Impacts would be **low** during construction with native and non-native wetland vegetation temporarily disturbed. Five line structures located in wetlands and eleven others within 100 feet of wetlands would be replaced. There would be 0.006 acre of permanent fill from structure replacement activities. Eighteen wetlands would be temporarily impacted by culvert replacements and repair resulting in 0.03 acre of permanent impacts. Approximately 10 danger trees would be removed within 50 feet of wetlands, although none would be removed within a wetland. Danger trees would be felled away from wetlands and would not remove or degrade wetlands but could affect species that visit the wetland.
Wetlands	No Action Alternative	Impacts would be similar to the Proposed Action (**low**). Under the No Action Alternative, existing structures and some access roads would continue to deteriorate, requiring structure replacement and road improvement. Impacts from emergency or planned maintenance activities would be low.
Wildlife	Proposed Action	Impacts would be **low** during construction. Danger tree removal could affect common wildlife species and marbled murrelet. Marbled murrelet is assumed to be potentially present in suitable habitat located along the project corridor at miles 19 and 21 on the Allston-Driscoll line and miles 4–7 and 21 on the Driscoll-Astoria line. Removal of danger trees would occur along the edges of existing cleared areas within and adjacent to the project ROW and would not measurably impact the adjacent conifer stands. No marbled murrelet nest trees would be removed. Danger tree removal would not occur between February 1 and September 23 to minimize displacement of nesting birds (including the marbled murrelet) and to avoid injuring bats. Bird collisions could occur at high bird use areas along the line but would be at similar frequency as the No Action Alternative. Bird diverters and perch deterrents would be used along the transmission lines to decrease bird impacts following rebuilding of the transmission lines. No adverse effects are anticipated on northern spotted owl, streaked horned lark, or yellow-billed cuckoo. Columbian white-tailed deer could be impacted by helicopter noise if present in the project vicinity, which may disrupt breeding, feeding, and sheltering for the duration of helicopter use. Helicopter use in areas where deer may be present would be conducted at standard regulated altitudes, as there are no landing zones or supply yards in these areas. The use of helicopters outside the fawning period (June 1 to July 15) would avoid the potential to disturb individual deer and fawns, and noise impacts would be **low**.

Resource	Alternative	Potential Impacts
Wildlife	No Action Alternative	Impacts would be similar to the Proposed Action (**low**) depending on the timing of ongoing or emergency activities. Vegetation removal or heavy equipment use could result in disturbance to nesting birds, especially during marbled murrelet critical nesting/breeding periods.
Cultural Resources	Proposed Action	Impacts would be **none-to-low** during construction and operations. Replacement structures would be the same type and the transmission line would retain its current alignment; the line's visual uniformity would remain, and its integrity would remain intact. Unknown cultural resources could be inadvertently discovered during construction and adherence to appropriate mitigation measures would ensure that any previously undiscovered resources found would be managed properly to minimize disturbance or destruction.
Cultural Resources	No Action Alternative	Impacts would be similar (**none-to-low**) to the Proposed Action from ongoing maintenance and emergency repairs.
Transportation	Proposed Action	Impacts would be **low** during construction and operations. During construction there would be a temporary increase in traffic on nearby roads from construction vehicles moving to job sites and long-bed semi-trucks and other vehicles delivering construction equipment and materials. Deliveries of equipment and materials to construction areas would cause short-term traffic delays along nearby city and county roads, state highways, and transmission line access roads. Landowners may experience disruptions to daily activities from construction and delivery vehicles driving and parking on private roads serving as access roads.
Transportation	No Action Alternative	Impacts would be similar (**low**) to the Proposed Action. Impacts from ongoing maintenance and emergency repairs could potentially include temporary blockage of access road entry at existing ODOT roads, and less planning to minimize delays and access issues which could lengthen transportation delays but would not be substantial.
Public Health and Safety	Proposed Action	Impacts to Public Health and Safety would be **low** during construction and operations. The transmission lines are in close proximity to multiple residences and businesses. The transmission line rebuild would have temporary and minor impacts to public health and safety during construction, including risk of injury to individuals or property damage.
Public Health and Safety	No Action Alternative	Impacts would range from **low to high** under the No Action Alternative. Continued operation of the aging transmission line would result in potential public safety hazards due to the operation of older, less reliable structures and associated equipment. Additionally, depending on the location of and magnitude for the need for emergency repair, power delivery could be restricted, resulting in the loss of power.

2.5 Best Management Practices and Mitigation Measures

Best management practices (BMP) and mitigation measures have been identified for the Proposed Action (Table 2-4). Some of these measures are design features that have been incorporated into the original design of the proposed project, as well as BMPs that are typically used by BPA. Other measures were identified as a result of the NEPA process and agency consultations and are intended to reduce or eliminate potential impacts from the Proposed Action on resources discussed in this EA.

Table 2-4. Best Management Practices and Mitigation Measures

Resource	BMPs and Mitigation Measures
Soils and Geologic Hazards	• Stabilize permanent disturbance areas by applying a weed-free gravel top layer to the roadways. • Conduct project construction, including tree removal, during the dry season when rainfall, runoff, and stream flow are low to minimize erosion, compaction, and sedimentation to the extent practicable. • Contact BPA geotechnical specialists if geotechnical issues such as new landslides arise during construction. • Install appropriate erosion-control devices where needed to minimize soil transport. • Retain vegetative buffers where possible to prevent sediments from entering waterbodies. • Include water control structures on reconstructed and improved access roads using low grades, water bars, and drain dips to help control runoff and prevent erosion. • Properly space and size culverts on access roads. • Apply water from water trucks on an as-needed basis to minimize dust and reduce erosion due to wind. • Revegetate disturbed areas to help stabilize soils as soon as work in that area is completed and appropriate environmental conditions exist, such as moderate temperatures and adequate soil moisture. • Where vegetation is used for erosion control on slopes steeper than 2:1, use a tackified seed mulch so the seed does not wash away before germination and rooting. • Inspect revegetated areas to verify adequate growth and implement contingency measures as needed. • Inspect and maintain access roads and cross-drains to ensure proper function and nominal erosion levels after construction. • Use pole wraps for placement of any chemically treated poles in wetlands, streams, or the 100-year floodplain. Install pole wraps per the following requirements: Chemically treated transmission poles placed within 50 feet of a stream, in a wetland, or within the 100-year floodplain must be encapsulated or wrapped from the butt ends to at least 18 inches above the ground or channel surface with an appropriate material to prevent leaching of chemicals. In areas that have a high likelihood of abrasion they must be equipped with a wear strip.
Vegetation	• Use the existing road system to access structure locations.

Resource	BMPs and Mitigation Measures
	• Minimize the construction area and disturbance to vegetation to the extent practicable, especially in marbled murrelet habitat, wetlands, and waterbody crossings. • Locate material yard storage and staging areas in previously disturbed areas where feasible. • Conduct as much work as possible, including tree removal during the dry season to minimize erosion and soil compaction. • Conduct tree removal in a manner that minimizes disruption to remaining plants and shrubs. • Cut trees and leave existing root systems intact to help prevent erosion. • Return temporarily disturbed areas to their original, pre-construction, contours and conduct site restoration and revegetation measures before or at the beginning of the first growing season following construction. • Revegetate disturbed areas with grasses, forbs, or shrubs to ensure appropriate vegetation coverage and soil stabilization during the optimal seeding window. • Revegetate disturbed areas using a slow-release fertilizer. • Keep pulling/tensioning equipment inside the transmission line ROW at pulling/tensioning sites located on ROW to minimize impacts to previously undisturbed vegetation. • Conduct post-construction site restoration monitoring once a month until site stabilization is achieved. • Prior to construction, identify noxious weed infestation areas for avoidance (as practicable). • Implement measures to minimize noxious weed spread, including inspection of vehicles before entering construction areas, remaining on established roads as much as possible, and installation and use of weed wash stations, or use of other appropriate equipment cleaning measures. • Conduct pre-construction surveys for Nelson's checkermallow within ground-disturbance areas in the portion of the corridor between Allston-Driscoll Structures 2/2 and 3/4.
Water Resources, Floodplains, and Fish	• Restrict construction vehicles and equipment to access roads and designated work areas. • Conduct soil-disturbing activities during the dry season and culvert work when streams are dry, where possible. • Comply with applicable Clean Water Act permits for work in streams. • Prepare and implement a storm water pollution prevention plan. • Install erosion-control measures (e.g., silt fences, straw wattles, and other sediment control measures) prior to work in or near floodplains and streams. Inspect and maintain as necessary to ensure their continued effectiveness until soils become stabilized. • Operate equipment from the top of a streambank and conduct work outside of the active stream channel, as practicable. • Use removable pads or mats to prevent soil compaction at all construction access points in riparian and wetland areas. • Limit the placement of fill for access road work in floodplains to the minimum required. • Install cross-drains per BPA access road design specifications. • Design and install culverts in accordance with Oregon Department of Fish and Wildlife (ODFW) fish passage requirements and National Oceanic and Atmospheric Administration Fisheries (NOAA). • Design culverts (non-fish drainages) for the 100-year storm event to minimize future maintenance needs.

Resource	BMPs and Mitigation Measures
	• Conduct in-water work between July 15 and September 15 for all streams east of Hunt Creek (near Driscoll-Astoria Structure 4/1) and between July 1 and September 15 for all streams west of Hunt Creek. • Isolate in-water work areas prior to culvert installations, dewater work area as necessary for construction and to minimize turbidity, and do not discharge turbid water to streams. • Return temporary disturbance areas for culvert and road work to pre-construction contours: mulch, seed, and plants as per plans and specifications. • Dispose of excess material generated from access road work in stable upland site (in gentle terrain more than 150 feet from waterbodies or wetlands), smooth to match adjacent grades, and seed for stability. In steep terrain or near waterbodies or wetlands, haul excess material off-site. • Confirm that any vehicle or mechanized equipment to be operated within 150 feet of water resources is clean (e.g., power-washed) and that it does not have fluid leaks prior to contractor mobilization of heavy equipment to site; inspect equipment and tanks for drips or leaks daily and make necessary repairs within 24 hours. • Store, fuel, and maintain all vehicles and other heavy equipment (when not in use) in a designated upland staging area located a minimum of 150 feet away from any stream, waterbody, or wetland or where any spilled material cannot enter natural or manmade drainage conveyances. • Maintain emergency spill control materials, such as oil booms and spill response kits, on-site at all times and ready for immediate deployment. • Contain petroleum product spills immediately, eliminate the source, and deploy appropriate measures to clean and dispose of spilled materials in accordance with federal, state, and local regulations. • Do not apply surface fertilizer within 50 feet of any wetland or water body. • Remove all erosion control structures when the project is complete, and soils are stabilized and vegetated. • Obtain all necessary permits for water drafting sites (locations where contractor may fill water trucks) and locate to minimize adverse effects on stream channel stability, sedimentation, and in-stream flows. • Use pole wraps and corrugated metal pipes on structures located within 50 feet of a wetlands, stream, or floodplain as outlined under soils and geologic hazards above.
Wetlands	• Use existing roads to access structure locations. • Use temporary equipment mats when working in wetlands and drive vehicles and equipment across wetlands only during the dry season. • Comply with applicable Clean Water Act regulations for all work in wetlands and regulated water bodies. • Install erosion control measures prior to work in or near wetlands (e.g., silt fences, straw wattles, and other sediment control measures). Inspect and maintain as necessary to ensure their continued effectiveness until soils become stabilized. • Avoid mechanized equipment usage in wetlands except where no practicable alternative exists.

Resource	BMPs and Mitigation Measures
	• Store fuel and maintain all vehicles and other heavy equipment (when not in use) in a designated upland staging area located a minimum of 150 feet away from any stream, waterbody, or wetland or where any spilled material cannot enter natural or manmade drainage conveyances. • Confirm that any vehicle or mechanized equipment to be operated within 150 feet of wetlands is clean (e.g., power-washed) and does not have fluid leaks prior to contractor mobilization of heavy equipment to site; inspect equipment and tanks for drips or leaks daily and make necessary repairs within 24 hours. • Dispose of excess material generated from access road work in a stable upland site (in gentle terrain more than 150 feet from waterbodies or wetlands), smooth to match adjacent grades, and seed for stability. In steep terrain or near waterbodies or wetlands, haul excess material off-site. • Remove all felled danger trees from wetlands. • Remove any temporary equipment mats and revegetate. • Remove all erosion control structures when the project is complete, and soils are stabilized and vegetated. • Restore all temporary disturbance areas to original contours and de-compact, if necessary. • Reseed all temporary disturbance areas in wetlands with a wetland specific seed mix and monitor revegetated wetland areas to ensure adequate cover. • Do not apply surface fertilizer within 50 feet of any wetland or water body. • Use pole wraps and corrugated metal pipes on structures located within 50 feet of a wetlands, stream, or floodplain as outlined under soils and geologic hazards above.
Wildlife	• Conduct danger tree removal outside the breeding season for migratory birds and marbled murrelet. • Install bird diverter devices in areas with potentially high avian use as determined in final design. • Install perch deterrents in areas with high potential raptor use as determined in final design. • Restore areas disturbed by construction to pre-construction condition, as much as practicable. • Limit helicopter use and flight paths to areas within and near the project ROW as much as practicable to minimize the extent of noise disturbance. • Between April 1 and September 23, prohibit helicopter use and construction in marbled murrelet habitat until 2 hours after sunrise and during the 2 hours prior to sunset. Potentially suitable marbled murrelet habitat is located adjacent to the project ROW and generally extends from Structures 19/3 to 20/2 and 20/4 to 21/1 on the Allston-Driscoll line and from Structures 4/4 to 7/2 and 20/4 to 21/5 on the Driscoll-Astoria line. • Remove all food scraps and food packaging of any kind from the project sites and transport it off-site after each workday; food cannot be left exposed and unattended for any amount of time; and no food may be fed to or left for wildlife. • Locate staging areas and material yards in previously disturbed or graveled areas to minimize soil and vegetation disturbance where practicable.

Resource	BMPs and Mitigation Measures
	• Pre-construction nest surveys would be conducted to determine the presence of any raptor or other bird nests in structures where work would occur, and the nests would be removed outside of the nesting season. Additionally, pre-construction surveys for eagles would be conducted to identify nests located outside of the ROW but within the disturbance buffer that might be impacted by project activities and require timing restrictions. • If a bald eagle nest is identified, BPA would avoid construction activities within 0.5 mile of an active bald eagle nest during the breeding season and avoid snag and large tree removal to the extent practicable.
Cultural Resources	• Follow BPA's Inadvertent Discovery Procedure, which requires that if an inadvertent discovery of cultural resources is made, all work in the vicinity must stop immediately and the BPA archaeologist, the Oregon State Historic Preservations Office, and affected Indian Tribes, if applicable, must be notified immediately. • Stop all operations immediately within 200 feet of the inadvertent discovery of human remains or suspected human remains, or if any items suspected to be related to a human burial are encountered during project construction; secure the area around the discovery and immediately contact local law enforcement, the BPA archaeologist, the Oregon State Historic Preservations Office, and the affected Indian Tribes, if applicable. • Provide cultural resources awareness training to explain cultural resource-related avoidance and mitigation measures to the BPA transmission line maintenance crew, construction contractors, and inspectors during preconstruction meetings.
Transportation	• Maintain access to residences and local businesses during construction. • Distribute the proposed schedule of construction activities to all potentially affected landowners and businesses, and post in recreation areas along the rights-of-way. • Coordinate with landowners regarding locations of new or temporary access routes to limit access and traffic disruptions. • Establish traffic-control flaggers and post warning signs of construction activities and merging traffic for traffic interruptions. • Coordinate with ODOT on road construction activities and transmission line crossings of US-30, HWY-202 and HWY-47. • Repair damage to roads caused by construction.
Public Health and Safety	• Secure the site at the end of each workday, as much as possible, to protect equipment and the general public. • Comply with all fire safety laws, rules, and regulations of the state of Oregon and prepare a Fire Prevention and Suppression Plan to meet BPA, local authority, and land manager requirements. • Conduct regular meetings between BPA and the contractor(s) to discuss safety concerns. • Conduct crew safety meetings at the start of each workday to review potential safety issues and concerns. • Establish safety signage in and around the work areas, with a 150-foot buffer around construction zones within residential properties and businesses to limit risk to individuals. • Coordinate safety personnel to be present during construction to ensure non-construction individuals do not access the work sites during construction.
Other BMPs	• Place plastic ground covers and concrete blocks to keep wood poles off the ground in material yards and staging areas.

Resource	BMPs and Mitigation Measures
	• Provide a construction schedule to all potentially affected landowners. • Maintain existing access to residences and other areas during construction. • Coordinate with State of Oregon Department of Forestry and commercial timber landowners to ensure that access road enhancements, gates, and construction and maintenance activities would minimize disruptions to commercial forestry operations. • Compensate landowners for the value of any property damaged by construction activities, as appropriate. • Use traffic safety signs and flaggers to inform motorists and manage traffic during construction activities on affected roads. • Install permanent gates at selected locations to minimize unauthorized use of BPA access roads and unauthorized entry to BPA ROW. • Provide traffic control where existing rural roadways are narrow to ensure traffic safety. • Follow the applicable state, county, and city requirements for traffic control and lane closures. • Use water trucks to control dust during construction, as needed. • Keep all vehicles in good operating condition to minimize exhaust emissions. • Turn off construction equipment during prolonged periods of non-use. • Drive vehicles at low speeds (less than 5 miles per hour) on access roads and in the BPA ROW to minimize dust. • Locate staging areas and material yards as close to construction sites as practicable to minimize driving distances between staging areas and construction sites. • Locate staging areas and material yards in previously disturbed or graveled areas to minimize soil and vegetation disturbance where practicable. • Encourage the use of the proper size of equipment for the job to maximize energy efficiency. • Recycle or salvage non-hazardous construction and demolition debris where practicable. • Dispose of wood poles at an appropriate facility in the local area where practicable. • Use local rock sources for road construction that meet road material and weed free standards, if possible. • Use non-reflective conductors. • Focus security lighting at staging areas and the material storage yard inward to minimize spillover of light and glare. • Require that contractors maintain a clean construction site and remove all construction debris. • Use sound-control devices on construction equipment with gasoline or diesel engines and limit construction noise to daylight hours (7:00 a.m. to 7:00 p.m.) to reduce noise impacts. • Prepare a project-specific Public Safety Plan that includes measures to control wildfire ignition, limit public access to the project area, and notify the public of any planned electrical outages.

3 Affected Environment and Environmental Consequences

This section describes the affected environment and resources that could be impacted by the Proposed Action and No Action Alternative. It also describes the potential impacts on these resources and the cumulative impacts that could result from implementation of the Proposed Action. Table 3-1 identifies resources initially considered for impact analysis. Not all of the resources present in the project corridor would be affected by the alternatives because there would be either no or only an extremely small, insignificant impact on the resource from the project. Because these resources are not issues for the proposed project, they have not been evaluated further, but are discussed at a high level in Table 3-1.

Table 3-1. Resources Initially Considered for Impact Analysis

Resource	Resource Status	Evaluation
Soils and Geologic Hazards	Present, potentially affected by the Proposed Action	Impacts are further disclosed under Environmental Consequences.
Vegetation	Present, potentially affected by the Proposed Action	Impacts are further disclosed under Environmental Consequences.
Water Resources, Floodplains, and Fish	Present, potentially affected by the Proposed Action	Impacts are further disclosed under Environmental Consequences.
Wetlands	Present, potentially affected by the Proposed Action	Impacts are further disclosed under Environmental Consequences.
Wildlife	Present, potentially affected by the Proposed Action	Impacts are further disclosed under Environmental Consequences.
Cultural Resources	Present, potentially affected by the Proposed Action	Impacts are further disclosed under Environmental Consequences.
Transportation	Present, potentially affected by the Proposed Action	Impacts are further disclosed under Environmental Consequences.
Public Health and Safety	Present, potentially affected by the Proposed Action	Impacts are further disclosed under Environmental Consequences.
Land Use	Present, temporary negligible effect by the Proposed Action	Because the existing transmission line would be rebuilt or repaired in the same location, existing and future land uses would not change in the project corridor. Work areas near local businesses and a fish hatchery would not be significantly impacted due to restricting construction access to existing roads. Impacts to businesses would result from temporary construction noise and increased traffic and would be negligible and mitigated by early coordination with BPA regarding the timing of work near businesses.
Recreation	Not present, not affected by the Proposed Action	No designated recreational use areas are located in the project corridor. There are no trails in the state forests crossed by the transmission lines that would be impacted by the project.

Resource	Resource Status	Evaluation
Visual Quality	Present, temporary minor effect by the Proposed Action	Existing views of the project corridor would not substantially change because a small number of replacement structures would exceed 100 feet in height, and access roads would be improved. Views of construction work areas would be temporary, and all equipment and materials would be removed after construction and thus would not result in substantial impacts.
Air Quality	Present, temporary minor effect by the Proposed Action	Temporary, localized air quality impacts from ground-disturbing activities and construction equipment could occur that would be consistent with air quality standards. Air quality impacts from dust and vehicle exhaust would be temporary through the duration of construction and would not result in long term impacts. Impacts would be similar to other BPA transmission line rebuild projects of similar length and thus would not result in substantial impacts.
Greenhouse Gases	Present, temporary minor effect by the Proposed Action	Temporary, localized emissions from construction equipment would occur. Removal of individual danger trees would likely cause an extremely small loss of greenhouse gas sequestration potential because most of the trees are currently dead or dying. Carbon dioxide equivalent (CO2e) emissions from construction activities are estimated to be approximately 4,500 metric tons, which is the equivalent of approximately 1,071 gasoline-powered passenger vehicles driven for 1 year (EPA 2022a). Other BPA transmission line rebuild projects of similar length had similar levels of carbon dioxide equivalent emissions ranging from 1,250 to 8,800 metric tons of carbon dioxide equivalent (BPA 2012, 2014). Emissions from transmission line rebuilds tend to be well below the Environmental Protection Agency (EPA) 25,000 metric ton reporting threshold. Therefore, the project would not result in substantial impacts.

Resource	Resource Status	Evaluation
Socioeconomics and Public Services	Present, temporary negligible effect by the Proposed Action	Public services and socioeconomics would not be substantially affected by transmission line rebuild activities. Traffic control would be established during construction to ensure access to businesses and residences within the project vicinity. There are estimated to be around 650 residences within 500 feet of the project transmission line. Any impacts to public services to these residences would be minimized and would occur with ample early coordination. Construction workers would be expected to be hired from the regional population, and this employment would have a positive but very small impact relative to the macro regional economy.
Environmental Justice	Present, temporary negligible effect by the Proposed Action	There are low-income populations living in communities along the ROW, including in Astoria, Knappa Junction, Taylorville, Clatskanie, Delena, and Allston, which may be considered environmental justice populations. The project would have similar impacts on surrounding low-income populations as it would have on other communities. The project would provide long-term benefits to surrounding communities by improving the reliability and safety of the transmission line. Construction would be short term with temporary inconveniences to residences and businesses located adjacent to the ROW. Affected communities would be notified of upcoming construction and potential disruptions. The project does not anticipate power outages. Overall, the Proposed Action would not create a unique pathway for environmental justice populations to experience disproportionate and adverse human health and environmental effects (including risks) and hazards.
Noise	Present, temporary minor effect by the Proposed Action	Noise disturbance would be limited to general construction equipment activities and helicopter use if determined to be necessary and would occur for a short duration during daylight hours. Impacts would be similar to other BPA transmission line rebuild projects of similar length.

3.1 Affected Environment

The project corridor includes the existing transmission line ROW (including access roads in the ROW), pulling and tensioning sites, danger tree removal areas adjacent to the ROW, substations, temporary staging areas and material yards, and the area within 25 feet of the centerline (for a total width of 50

feet) of access roads that extend beyond the ROW. Field surveys were conducted in spring and summer 2022 to identify cultural resources, wetlands, waters, and potential habitat for listed species.

The transmission lines are in Clatsop and Columbia counties. The Allston-Driscoll No. 2 transmission line begins at the Allston Substation approximately 1.5 miles northeast of the community of Alston, Oregon. The transmission line travels due south from the substation for approximately 0.5 mile before turning and traveling west for approximately 12 miles to near Marshland, Oregon. From there, the transmission line turns slightly to the northwest for an additional 10 miles before terminating at the Driscoll Substation. The Driscoll-Astoria No. 1 transmission line begins at the Driscoll Substation near Wauna, Oregon. The transmission line travels northwest for approximately 1 mile before turning west near Bradley State Scenic Viewpoint. It then travels generally west for approximately 20 miles before terminating at the Astoria Substation in Astoria, Oregon. The transmission lines are primarily located on a combination of private lands (67 percent), Oregon Department of Forestry-managed lands (6 percent), Oregon Department of State Lands-managed lands (11 percent), and BPA federally-managed lands (14 percent). The remaining lands are City of Astoria, Columbia County, and Clatsop County-managed lands.

3.1.1 Soils and Geologic Hazards

Soils and Erosion Potential

Elevation along the transmission line corridors ranges from approximately 2 feet above sea level near the Astoria Substation to approximately 970 feet above sea level at various points along the corridor. Soils along the corridor are primarily silt and gravelly loams, with slopes typically ranging from 0 to 60 percent. The project corridor crosses soils mapped as farmland of statewide importance near Structures 21/6, 19/3, 18/5, 11/2, 11/1, 10/6, and 9/5 of the Driscoll-Astoria line and near Structure 1/7 of the Allston-Driscoll line (NRCS 2023). No soils classified as prime farmland are mapped along either line.

On slopes less than 8 percent, soils are susceptible to slight-to-moderate levels of erosion when exposed to water or wind. Erosion hazard areas with slopes greater than 8 percent are susceptible to severe levels of erosion when exposed to water or wind. Approximately 6 percent of the length of lines have slight, 7 percent have moderate, and 87 percent have severe susceptibility to erosion when exposed to wind or water (NRCS 2023).

Geologic Hazards

Due to a combination of topography, climate, and underlying geology, the project corridor consists of areas that have been mapped as having a low, moderate, or high landslide risk. The project corridor crosses mapped landslide deposits at various points between Structures 1/1 and 3/3 and Structures 17/1 and 22/4 of the Driscoll-Astoria line and between Structures 9/1 and 11/7 and Structures 14/4 and 22/7 of the Allston-Driscoll line (OR DOGAMI 2023). These mapped landslides areas correspond to areas that have a high landslide risk. Along Driscoll-Astoria, Structures 22/5 to 22/10, 20/5, 15/5 to 15/6, and 1/1 to 2/4 and along Allston-Driscoll Structures 15/5 to 22/7, 15/1, 10/2 to 11/2, 9/4 to 9/5, 9/2, 8/3 to 8/4, and 7/5 are in high landslide risk areas (OR DOGAMI 2023).

The closest active faults to the project area are approximately 17 miles south of the project corridor in southern Clatsop County. In the event of an earthquake, the expected shaking along the project corridor

varies between strong to very strong, where the stronger the expected shaking, the more structural damage that would be anticipated (OR DOGAMI 2023).

Liquefaction is a process in which loose, granular soils below the groundwater table temporarily lose strength during strong earthquake shaking. Intermittent areas with moderate liquefaction susceptibility are present between Structures 9/5 and 18/5 and Structures 1/1 to 2/4 of the Driscoll-Astoria line and between Structures 10/1, 15/5 to 20/3, and 21/2 to 22/7 of the Allston-Driscoll line (OR DOGAMI 2023).

No volcanic hazards are present in or near the project corridor.

3.1.2 Vegetation

The project lies within the Coast Range level three ecoregion, which is subdivided into the Coastal Uplands, Volcanics, and Willapa Hills level four ecoregions (Thorson et al. 2003). The Coastal Uplands level-four ecoregion consists of headlands and low mountains surrounding the coastal lowlands. The marine climate is characterized by mild temperature variations with infrequent temperature extremes, a longer winter rainy season, and abundant fog in the summer dry season, which reduces drought stress on vegetation. This region includes the historic range of Sitka spruce (*Picea sitchensis*) and is currently dominated by logging forests of Douglas fir (*Pseudotsuga menziesii*). The Volcanics level-four ecoregion consists of areas with steep slopes marked primarily by Douglas fir forests that have been heavily logged. The Willapa Hills level-four ecoregion vegetation consists of Douglas fir and western hemlock (*Tsuga heterophylla*) forests with sword fern (*Polystichum munitum*), Oregon grape (*Berberris aquifolium*), and rhododendron (*Rhododendron macrophyllum*) shrub layer. Riparian areas support red alder (*Alnus rubra*), western red cedar (*Thuja plicata*), and salmonberry (*Rubus spectabilis*). Logging is prevalent in this region due to the low cost and accessible terrain.

Vegetation in the project corridor has been extensively modified by forest practices, road and transmission line construction and maintenance, and rural residential development. Vegetation types within the 2-mile buffer of the project corridor include coastal coniferous forest, mixed coniferous/deciduous forest, riparian areas, wetlands, logged forest, shoreline/beach/dune/bluff, grassland/shrubland, and agricultural land. Within the project ROW, dominant vegetation categories include herbaceous mixed, mixed shrubs, and nonnative shrubs. The most common native plants observed include sword fern, salal (*Gaultheria shallon*), and Oregon grape.

Non-native plants, including some noxious weeds, have displaced many of native plant species that occur in the project corridor. The Oregon Department of Agriculture (OR DOA) has mapped numerous populations of noxious weeds throughout the project corridor. Mapped populations include yellow flag iris (*Iris pseudacorus*), purple loosestrife (*Lythrum salicaria*), Himalayan knotweed (*Polygonum polystachyum*), lesser celandine (*Ranunculus ficaria*), Japanese knotweed (*Fallopia japonica*), giant knotweed (*Fallopia sachalinensis*), Himalayan blackberry (*Rubus armeniacus*), scotch broom (*Cytisus scoparius*), and tansy ragwort (*Senecio jacobaea*) (OR DOA 2023). Tansy ragwort is designated a “T” species by the Oregon State Weed Board, which are the priority species for prevention and control. The remaining species are classified as “A-Listed” and “B-Listed” weeds, which are lower priority species based on distribution. During field surveys, the primary non-native species observed were scotch broom, Himalayan blackberry, and reed canary grass (*Phalaris arundinacea*). Reed canary grass

is not a listed noxious weed, but it is a threat to wetland and riparian ecosystems where it can suppress the growth of other plants.

Nelson's checkermallow (*Sidalcea nelsoniana*) is an Oregon state threatened flowering plant that was listed as federally threatened under the Endangered Species Act (ESA) but has recently been delisted with the final rule effective November 16, 2023 (USFWS 2022b). Nelson's checkermallow is a long-lived perennial herb with pinkish-lavender flowers born in clusters at the end of 1- to 2.5-foot-tall stems (USFWS 2012). The species requires moist to dry sites with poorly drained to well-drained clay, clay loam, and gravelly loam soils in meadows, and rarely, wooded habitats (USFWS 2012). It is occasionally found where prairie or grassland remnants persist, such as along fence rows, drainage swales, and at the edges of plowed fields adjacent to wooded areas (USFWS 1993). In the Willamette Valley in Oregon, Nelson's checkermallow occurs primarily in wet prairies, stream sides, and Oregon ash (*Fraxinus latifolia*) dominated swales below 650 feet in elevation (USFWS 2012).

A known population of Nelson's checkermallow is located approximately 1,000 feet south of Structure 2/2 on the Allston-Driscoll line. This population is considered relatively large and was last reported in June 2004 (ODFW 2020). Nelson's checkermallow was not observed during field surveys of the project footprint and ground-disturbance areas. The ground cover near Structures 2/2, 2/3, and 3/1 on the Allston-Driscoll line appear to be previously grazed based on field observations in March 2022. However, due to the proximity to the known population of Nelson's checkermallow, pre-construction surveys would be conducted within ground-disturbance areas in the portion of the corridor between Allston-Driscoll Structures 2/2 and 3/4 to confirm whether the species is present (Table 2-4).

3.1.3 Water Resources, Floodplains, and Fish

Water Resources

The project spans multiple waterbodies including the John Day River, Bear Creek, Ferris Creek, Little Creek, Big Creek, Fertile Valley Creek, Dogwood Creek, Supply Creek, Rock Creek, Big Noise Creek, Gnat Creek, Hunt Creek, Plympton Creek, Ross Creek, Olson Creek, Eilertson Creek, OK Creek, Tandy Creek, Graham Creek, Conyers Creek, the Clatskanie River, Beaver Creek, and Elk Creek, and crosses numerous unnamed tributaries to these waterways.

On the Driscoll-Astoria line, the Oregon Department of Environmental Quality (OR DEQ) 303(d) list includes the John Day River between Structures 18/4 and 18/5 for fecal coliform, arsenic, temperature, polychlorinated biphenyls (PCBs), dioxin, dichlorodiphenyldichloroethylene, and mercury; Bear Creek between Structures 14/3 and 14/4 for temperature; and Big Creek between Structures 10/6 and 11/1 for temperature. On the Allston-Driscoll line, the Clatskanie River between Structures 9/6 and 10/1 is listed for E. coli, fecal coliform, and temperature (OR DEQ 2023a).

No OR DEQ groundwater management areas are found within the project corridor (OR DEQ 2023b). There are three wells inside or within 100 feet of the Driscoll-Astoria ROW boundary. Two are community wells, with one about 160 feet southwest of structure 6/1, and the other about 320 feet southwest of structure 8/7. The other is a domestic water well 170 feet northeast of Structure 5/6 (OR DEQ 2023c).

Along the Allston-Driscoll line, there are 10 domestic wells and 1 industrial well inside or within 100 feet of the ROW boundary. The domestic wells are about 600 feet southwest of Structure 1/3; 950 feet southwest of Structure 1/6; 775 feet southwest of Structure 1/7; 670 feet east of Structure 2/1; 50 feet south of Structure 3/2; 320 feet southeast of Structure 3/5; 60 feet east of Structure 5/8; 360 feet east of Structure 5/9; 200 feet northwest of Structure 12/7; and 20 feet east of Structure 22/7. The industrial well is about 340 feet south of Structure 1/5 (OR DEQ 2023c).

Floodplains

In Columbia County, there are Federal Emergency Management Agency (FEMA)-designated 100-year floodplains along Beaver Creek, the Clatskanie River, and Conyers Creek that cross the transmission line corridor. In Clatsop County, there are FEMA-designated 100-year floodplains along Big Creek, Hillcrest Creek, Bear Creek, the John Day River, and the Youngs River that cross the transmission line corridor (FEMA 2023).

Fish

The project corridor crosses two major rivers that are tributaries to the Lower Columbia River: the Clatskanie River and the John Day River. Both rivers are documented to support anadromous salmon, including ESA-listed stocks of lower Columbia River coho salmon (*Oncorhynchus kisutch*), Columbia River chum salmon (*O.s keta*), lower Columbia River fall Chinook salmon (*O. tshawytscha*), and lower Columbia River steelhead trout (*O. mykiss*) (NOAA 2024). The Columbia River is designated critical habitat for coho salmon and green sturgeon (*Acipenser medirostris*), though green sturgeon is not present in the project area. While critical habitat is designed in the general project area, no project-related work would occur within or near the Columbia River bankfull elevation.

The project also crosses 20 other tributaries and creeks that are inhabited by lower Columbia River salmon stocks. Beaver Creek, Plympton Creek, Gnat Creek, Big Creek, Ferris Creek, and Hillcrest Creek are all used by fall Chinook salmon, coho salmon, and steelhead trout. Coho salmon and steelhead trout inhabit the remaining named creeks and tributaries, including Graham Creek, Olsen Creek, Bear Creek, and Marys Creek, among several others. Bull trout (*Salvelinus confluentus*) are typically found in snowmelt-dominated streams that maintain cold water temperatures in headwater tributaries year-round. Bull trout are rare in the lower Columbia River and do not occur in the low-gradient, rain-fed streams and tributaries in the project corridor. Further, critical habitat has not been designated for bull trout in the project area. The Proposed Action would not include activities within the bankfull elevation of the Columbia River, and the aquatic portion of the project area does not extend to the Columbia River.

3.1.4 Wetlands

Sixty-six wetland areas were delineated in the project corridor (BPA 2023b) and were characterized according to the hydrogeomorphic (Brinson 1993) and Cowardin (Cowardin 1979; FGDC 2013) classification systems. Most wetlands are characterized as riverine (23), slope (16), or depressional (14) wetlands. The remainder of the wetlands are characterized as riverine/depressional (8), riverine/slope (3), depressional/slope (1), and depressional/slope/riverine (1) (Brinson 1993).

Due to historical and continued transmission line vegetative management, tall woody vegetation is prevented in the transmission line ROW, and the vegetation is managed as low growing. Most (38) of the delineated wetlands are categorized as either palustrine scrub-shrub (PSS) and palustrine emergent wetlands (PEM) within the ROW. Another 19 wetlands are categorized as PEM. Ten wetlands are a combination of palustrine forested (PFO), PSS, and PEM. Two wetlands are categorized as PFO and PSS (Cowardin 1979; FGDC 2013). When wetlands extend outside of the survey and beyond the ROW, there is typically an abrupt vegetative change that includes a palustrine forested component.

Typical wetland and riparian areas within the project corridor are vegetated with native plants including soft rush (*Juncus effusus*), small-fruited bulrush (*Scirpus microcarpus*), lady fern (*Athyrium filix-femina*), skunk cabbage (*Lysichiton americanus*) and a mix of pasture grasses (e.g., *Schedonorus arundinaceus*, *Poa pratensis*, and *Agrostis capillaris*). Shrubby wetlands contain native shrubs, including willows (*Salix sitchensis*, *S. scouleriana,* and *S. hookeriana*), red-osier dogwood (*Cornus sericea*) and salmonberry, and some non-native Himalyan blackberry. Valley-bottom wetlands encountered in the project corridor are most often dominated by a dense growth of reed canarygrass, slough sedge (*Carex obnupta*), and common rush (*Juncus effusus*) along with pasture grasses and Douglas-spiraea (*Spirea douglasii*).

3.1.5 Wildlife

A large portion of the project corridor is located within timber management areas with low species variability and limited structural complexity. It consists primarily of young coniferous, young regeneration, and recently harvested forest. In the eastern part of the project corridor along the Allston–Driscoll line, forest cover includes predominantly mixed coniferous/deciduous forest and deciduous forest. There are also many developed areas where non-native species are abundant. Some priority habitats of unique value to wildlife species, such as riparian areas and stands with mature conifer forest, are present, particularly in the western half of the project corridor.

The project area provides habitat for numerous big game animals, small mammals, reptiles, birds, and amphibians. A wide variety of animals have been observed throughout the area during field surveys, including black bears, elk, deer, and various small mammals, raptors, and songbirds (BPA 2023a).

Marbled murrelet (*Brachyramphus marmoratus*) is a federally threatened bird under the ESA. The seabird nests in mature forest stands within 50 miles of the coast, and the eastern terminus of the project corridor (i.e., Allston Substation) is located approximately 45 miles from marine waters. During the nesting season (April 1 through September 23), murrelets fly inland from the coast and back and forth several times a day to fish in the ocean, often using waterways as flight corridors to nesting areas (Evans Mack et al. 2003). Although the marine environment is the murrelet's principal habitat, terrestrial habitat serves a vital function seasonally for nesting and reproduction. In their terrestrial environment, the presence of platforms (large branches or deformities) used for nesting is the most important characteristic of their nesting habitat. Nests are not built, but rather the eggs are placed in small depressions or cups made in moss or other debris on the limb (USFWS 1997). A nesting platform can be composed of a wide bare branch, moss or lichen covering a branch, mistletoe, witches' brooms, or other deformities (Evans Mack et al. 2003). Suitable marbled murrelet nesting trees are typically large, tall, old-growth, late-successional, or older conifers (more than 19 inches diameter at breast height [dbh] and greater than 108 feet tall) situated in contiguous conifer-dominant (more than 60 percent conifer) stands (WSDOT and FHWA 2015). These conifer-dominated stands may vary in size

from several acres (at least 5 acres) to thousands of acres, with large unfragmented stands of old growth comprising the highest-quality habitat.

Murrelet habitat use during the breeding season is positively associated with the presence and abundance of mature and old-growth forests, large core areas of old-growth habitat, low amounts of edge habitat, reduced habitat fragmentation, proximity to the marine environment, and forests that are increasing in stand age and height (USFWS 2019a). The project vicinity contains limited areas of mature forest in linear patches along stream corridors that are not harvested and older second growth older trees that have matured enough to provide some of the branch and canopy structure required by marbled murrelets. Based on the occurrence of patches of potentially suitable forested habitat, it is assumed that these areas may support nesting and may be occupied by murrelets during the nesting season (April 1–September 23). These areas are located between Structures 19/3 to 20/2 and 20/4 to 21/1 on the Allston-Driscoll line and between Structures 4/4 to 7/2 and 20/4 to 21/5 on the Driscoll-Astoria line. The project corridor also overlaps federally designated critical habitat for marbled murrelet between Structures 4/3 and 7/2 on the Driscoll to Astoria transmission corridor.

Murrelets are sensitive to noise disturbance. Potential murrelet responses to disturbance include delay or avoidance of nest establishment, flushing of an adult from a nest or branch in nesting habitat, aborted eggs, or delayed feeding of juveniles. These behavioral disruptions may increase the risk of predation and reduce the fitness of nestlings from missed feedings. Noise and visual disturbance would not always result in these effects or direct nest failure but would increase such risks.

Similar to marbled murrelet, the northern spotted owl (*Strix occidentalis caurina*), a federally threatened bird, is strongly associated with old-growth forests that are characterized by multi-storied canopies; several species of trees, sizes, and ages; and standing and downed dead trees. Historically occurring in some areas along the project corridor, spotted owls nest in cavities or platforms in trees, and pairs are typically spaced approximately 1 to 2 miles apart. Nests are usually found in forests in lower elevations and river valleys, and nest trees typically include Douglas-fir, mountain hemlock (*Tsuga mertensiana*), western hemlock, or Pacific silver fir (*Abies amabilis*) (USFWS 2011). Although some potentially suitable conifer forest is present in the project vicinity, particularly in the western end of the project corridor, much of the surrounding area is highly disturbed with active logging operations and rural residential and agricultural activities. Small patches of older forest currently function solely as potential foraging or dispersal habitat for transient spotted owls dispersing across the landscape. Habitat in the project area and adjacent to the project corridor is marginal for spotted owls due to the predominance of relatively young forest stands less than 125 years old (mid-seral). This land is a mosaic of forest stands of different ages, and some of it may be suitable for spotted owl roosting, foraging, and dispersal.

Bald eagles (*Haliaeetus leucocephalus*) are relatively common within 3 to 4 miles of the project corridor, concentrated within the areas along the Columbia River and associated islands. These bald eagle populations are active in this area year-round, including during the nesting season, as they typically inhabit and nest in mature forested areas adjacent to large bodies of water. There are no known occurrences of golden eagles in the project corridor. No bald eagle nests were observed in or adjacent to the project ROW or access roads.

Columbian white-tailed deer (*Odocoileus virginianus leucurus*), streaked horned lark (*Eremophila alpestris strigata*), and yellow-billed cuckoo (*Coccyzus americanus*), all listed as threatened under the ESA, also have the potential to occur in the project vicinity. Columbian white-tailed deer and streaked horned larks inhabit islands in the lower Columbia River within the area potentially impacted by helicopter noise during project construction, but do not inhabit areas directly impacted by the project construction footprint and vegetation disturbance areas (WDFW 2004, Hatten et al. 2019). Additionally, although potentially suitable riparian habitat for yellow-billed cuckoo occurs along the Columbia River, the project corridor, comprised primarily of weedy shrubs and grasses surrounded by conifer-dominated forest and rural residential development, does not contain suitable habitat for the species (USFWS 2022a).

The Pacific marten (*Martes caurina*) is another species that inhabits the coastal conifer forests in Oregon and is listed as threatened under the ESA. The coastal marten is a medium-sized mustelid, a mammal of the weasel family that historically occurred throughout the coastal forests of northwestern California and Oregon (USFWS 2019b). The species tends to select older forest stands (e.g., late-successional, old-growth, large conifer, mature, late-seral, and structurally complex forests) or forests that represent a mixture of old and large trees, multiple canopy layers, snags and other decay elements, dense understory development, and biologically complex structure and composition (USFWS 2019b). While martens typically use older forests, they may be found in forests with smaller-diameter trees as long as combined overstory and understory cover remains high (USFWS 2019b). The population nearest the project area is the central coastal Oregon population, located in shore pine (*Pinus contorta*) dominated forest in the Oregon Dunes Recreation Area (USFWS 2019b), approximately 120 miles south of the action area. However, potentially suitable forest habitat for Pacific marten is located in several areas adjacent to the BPA ROW along the western end of the project corridor in older conifer stands similar to that described for marbled murrelet.

Townsend's big-eared bat (*Corynorhinus townsendii*) is listed as state sensitive and an Oregon Conservation Strategy species (ODFW 2024a). Townsend's big-eared bats inhabit conifer and mixed forests throughout the region, including the project area. They have highly specific roost requirements and are very sensitive to disturbance at roost sites. They use caves, mines, and isolated buildings for day and night roosting, maternity roosts, and hibernacula and also make use of hollow trees and bridges for day or night roosting.

The western toad (*Anaxyrus boreas*) is a federal species of concern and a state sensitive species. Adult toads are primarily terrestrial but often occur near waterbodies (ODFW 2024b). The wetlands in the project corridor may provide habitat for the western toad for reproduction and early life stage development.

3.1.6 Cultural Resources

A cultural resources inventory consisting of background research and field surveys for both archaeology and historic resources was conducted within the transmission line ROW, access roads, and all other areas of the project's Area of Potential Effects (APE) (Lynch and Roulette 2023; Gratreak et al. 2023). Based on the results of the background research, no previously recorded archaeological sites and 40 historic built-environment resources were documented in the APE. The field survey did not identify any archaeological resources. The field survey identified 40 historic built-environment

resources, including 12 resources previously determined eligible for listing in the National Register of Historic Places (NRHP) and 28 newly recorded resources. Of the 28 newly recorded resources, 12 were determined eligible and 16 were determined not eligible for listing in the NRHP.

All 12 of the built-environment resources previously determined eligible for listing in the NRHP are significant for their association with BPA and include the Allston Substation and Driscoll Substation Historic Districts, each containing 2 contributing resources within their respective districts, 5 existing BPA transmission lines (Allston-Driscoll No. 2, Driscoll-Astoria No. 1, Driscoll-Naselle No. 1, Allston-Clatsop No. 1, and Allston-Driscoll No. 1), and the Astoria Substation Control House (AECOM 2020; Armstrong 2022; Kramer 2012; OHSD 2022).

The 12 newly recorded built-environment resources determined eligible for listing the NRHP include a Craftsman-style dwelling at 16261 Hall Road in Clatskanie, Oregon, and the Gnat Creek Hatchery, a recommended eligible historic district with 10 contributing resources.

3.1.7 Transportation

The existing Allston-Astoria transmission line intersects numerous residential streets, city, and county roads, and also crosses US-30, HWY-202 and HWY-47. The highways serve a high volume of traffic consisting mainly of statewide and interstate travelers, and local roads serve mostly local residents and businesses and a lower volume of traffic.

3.1.8 Public Health and Safety

Public Health and Safety resources for communities along the Allston-Astoria transmission line are provided by state, city, and county agencies. Emergency 911 calls and dispatch for fire districts, police, and emergency medical services are coordinated by local law enforcement and the proper city or county agency is dispatched. Existing health and safety concerns along the transmission line include the deteriorating condition of the line that leaves communities served by the transmission line and distribution system vulnerable to loss of electrical service in the event of extreme weather events, high winds, or other natural hazards.

Natural hazards such as wildlife, poisonous plant species, pollution, wildfire, flooding, landslides, and earthquakes also pose a threat. Additional safety hazards include animals that pose a potential danger to vehicle operators by increasing collision risk and hazardous roadway conditions in inclement weather.

3.2 Environmental Consequences

3.2.1 Soils and Geologic Hazards

Proposed Action

Soils and Erosion Potential

Impacts on soils would occur from auguring structure holes; construction of landings; removal of vegetation; temporary soil piling; compaction or rutting from heavy equipment; spreading of excess soils around the base of the structure; burying guy wire anchors; construction, reconstruction, or

improvement of roads; compaction in areas used as staging areas, material yards, and pulling/tensioning sites; or potential contamination from PCP or accidental equipment spills. Ground that has been cleared of vegetation would be susceptible to erosion and establishment of invasive plants. The erosion potential for disturbed soils would be greatest during and immediately after construction before disturbance areas are revegetated. Ground compaction degrades the soil structure and reduces soil productivity and the soil's ability to absorb water. Reduced soil productivity in farmland of statewide importance areas crossed by the project corridor likely occurred when the line and roads were constructed and trees were removed. Soils adjacent to these facilities have likely recovered since original transmission line construction and would recover from the proposed project as vegetation becomes reestablished, organic matter is naturally added over time, and the soils' capacity to absorb water is regained.

At structure sites, replacement of 255 structures and use of construction equipment would temporarily disturb approximately 51 acres of soils. Soil compaction from the use of heavy machinery at each structure site would be limited to areas immediately adjacent to the structures. An area of approximately 15 by 15 feet (0.005 acre) at structures without guy wires (total of approximately 0.7 acre) and approximately 30 by 50 feet (0.03 acre) with guy wires (total of approximately 1 acre) would be permanently disturbed. Excess soil removed during plate anchor installation also would be spread around the structure site.

Permanent structure landings, used to provide space for equipment and vehicles during construction and maintenance, would be constructed at 18 structures located in steep terrain. Landings at structures would disturb approximately 0.05 acre. Prompt mulching and seeding of exposed soils would help reduce the potential for erosion from disturbed sites. Until vegetation becomes reestablished, soil erosion could occur; however, once vegetation is established, erosion would be unlikely. By using BMPs (Table 2-4) and conducting peak construction work during the dry season, impacts from structure replacement and landing construction would be **low** due to the small acreage affected.

The wood preservative PCP would be used to treat the wood poles for the transmission structures to lessen wood rot and extend the life of the poles. PCP contains chlorinated dibenzodioxins and chlorinated dibenzofurans that have the potential to leach into adjacent soils or water (such as in a wetland). PCP can move through the pole and leach from the bottom of the pole into the soil near the underground portion of the pole (EPA 2024b). PCP tends to move through the pole rapidly for the first few years of use and then becomes relatively constant with time (EPA 2024b).

Pole wraps would be used to minimize the potential for leaching into the environment. Therefore, chemically treated transmission poles placed within 50 feet of waterbodies or within the 100-year floodplain would be wrapped to at least 18 inches above the ground with an appropriate material to prevent leaching of chemicals. See full description of BMP in Table 2-4.

Improving approximately 27 miles and reconstructing approximately 6 miles of the existing access road system would disturb soils from grading. For the most part, work on existing roads would not result in a new permanent impact on soils because the roads already exist and soils are already compacted or covered with gravel (or a combination of both). Approximately 0.4 mile of new roads would be constructed, which would add permanent fill materials to approximately 2 acres. Most of the 0.4 mile of new road construction involves adding base rock for gravel roads through open areas. Where possible,

access roads would be located in areas that have been previously disturbed to avoid impacts to non-disturbed areas. Erosion associated with roadway usage would have the greatest impact in areas where roads are on soils with a severe erosion hazard rating and slopes greater than 8 percent.

Access road work would occur during the dry season and would include installation of water bars and drain dips as well as new gravel surfacing. These features are designed to reduce erosion and minimize impacts on soil and adjacent water bodies. Additionally, erosion and sediment control measures would be installed prior to and used during road work, but there would still be a low risk of erosion on slopes of 8 percent or less and a moderate risk of erosion on slopes greater than 8 percent.

Installation and repair of water conveyance structures, such as culverts, one bridge, and one fords, are also part of access road work for the project and could temporarily disturb bank soils and streamside vegetation, which could result in eroded soils entering streams. Trees and other vegetation would need to be removed around culvert installation and replacement areas. These areas would be mulched, seeded, or replanted (or a combination) based on site conditions to minimize temporary impacts and facilitate site restoration. Through implementation of the BMPs, impacts from pole replacement, access road work, and installation of water conveyance structures are expected to be **low**.

Soil compaction could occur where temporary staging areas and material yards and pulling/tensioning sites are located. At pulling and tensioning sites, vegetation would be crushed or removed to create level sites to set up equipment. The disturbance area for pulling and tensioning sites is approximately 200 feet by 100 feet (0.5 acre). The project would need approximately 41 tensioning sites, temporarily disturbing approximately 20.5 acres. Soil disturbance and compaction also would occur within pulling/tensioning sites from grading and use of the puller, tensioner, and reel equipment. Temporary staging areas and materials yards would be up to 8 acres each and would not require ground disturbance. These impacts would be **low** because while a small amount of vegetation would be disturbed, the activities would be temporary and occur close to previously disturbed areas such as substations and previously cleared areas. Use of BMPs prior to and after use of these temporary sites would result in **low** impacts from staging areas, material yards, and pulling and tensioning.

Impacts from danger tree removal could include soil erosion and dust generation. Stumps would be left in place to minimize impacts on soils; however, impacts would be **low** with the use of BMPs. Impacts would be short-term and would occur in a relatively small area, and adjacent vegetation would be left in place.

The project would result in soil erosion, water runoff, and ground compaction which could degrade soil. Through implementation of mitigation measures such as installing appropriate erosion-control devices, establishing water control structures on access roads, and revegetation of disturbed areas to stabilize soils (see Table 2-4), impacts to soils and erosion would be **low**.

Geologic Hazards – Landslides and Earthquakes

Structure work areas and access road work areas located within high landslide risk areas are presented in Table 3-2. However, the risk for structures to be impacted by landslides is **low**. Structures located within active landslide areas could be problematic if the structures move with the sliding earth. Wood-pole structures are relatively flexible and can withstand minor movement; however, if minor movement occurs over several years (or even decades), the cumulative movement may be enough to stress the

structures and conductor, causing the structure to fall and potentially jeopardizing the functioning of the transmission line and public safety. Access roads located within active landslide areas and steep terrain could increase the risk of landslides.

Table 3-2. Project Features in High Landslide Risk Areas

Transmission Line	Structure Work Areas in High Landslide Risk Areas	Access Road Improvements in High Landslide Risk Areas	Access Road Reconstruction in High Landslide Risk Areas	Access Road Improvement and Reconstruction in High Landslide Risk Areas
Driscoll-Astoria	Structures 22/5 to 22/10, 20/5, 15/5 to 15/6, and 1/1 to 2/4	Near Structures 15/5, 15/6, 19/3, and 20/5	N/A	Near Structures 1/2 to 2/4
Allston-Driscoll	Structures 15/5 to 22/7, 15/1, 10/2 to 11/2, 9/4 to 9/5, 9/2, 8/3 to 8/4, and 7/5	Near Structures 7/5, 8/3 to 8/4, 9/4 to 9/5, 10/2 to 10/4, 10/5, 10/6, 15/1, 16/1, 18/1 to 18/6, 19/2 to 19/4, 20/4, 21/2, 21/3, and 21/5	Near Structures 9/2, 15/5, 18/7, 19/1, 22/1, 22/3, and 22/4	Near Structures 10/7 to 11/2, 16/4 to 16/5, 17/1 to 17/5, and 20/1 to 20/3

Source: OR DOGAMI (2023).

The project area is in a seismically active region. Structures 1/1 to 2/4, 9/5, 9/6, 10/1 to 11/1, 12/6, 14/1 to 14/3, 18/3 to 18/5, and 19/1 along Driscoll-Astoria are in a moderate liquefaction hazard area. Structures 10/1, 15/5 to 20/3, and 21/2 to 22/7 along Allston-Driscoll are in a moderate liquefaction hazard area. Transmission line structure foundations built on soil that is susceptible to liquefaction could settle differentially or displace laterally during strong ground motion. Depending on the magnitude of movement, the structure could be rendered unusable, or in extreme conditions, the structure could fail. Custom foundation designs have been prepared for structures in the liquefaction area to minimize the risk of structure damage during a liquefaction event. Under these circumstances, additional maintenance or repairs would be required. Construction of the project would not affect the liquefaction susceptibility of the soil.

Mitigation measures and BMPs listed in Table 2-4 would be used to reduce or avoid impacts. Impacts remaining after mitigation would include soil compaction and reduced soil productivity around structures and along access roads and soil erosion in areas with steep slopes. Erosion-control devices and water control structures would be installed, weed-free gravel would be applied to roadways, and disturbed areas would be revegetated to mitigate soil erosion and risk of structures to be impacted by geological hazards is **low**.

No Action Alternative

Under the No Action Alternative, the existing transmission lines would not be rebuilt; existing access roads would not be improved or reconstructed, and no new access roads would be constructed; therefore, impacts related to the Proposed Action would not occur in a similar timeframe or at all. As existing structures deteriorate, conductor fittings fail, and access road work is needed, soils would be disturbed. Although roads would be repaired, as needed, to access structures, comprehensive road

improvements to improve drainage and increase culvert size would not likely be made, increasing the risks for slumping and erosion. If emergency repairs to the transmission line were required during storm events (when structures are more likely to fail), saturated soil conditions would increase site-specific erosion risk and compaction. Overall, impacts on soils from the No Action Alternative would be **low** for planned activities during the dry-season work; however, should work occur during the wet season under emergency conditions, impacts would be **moderate**.

3.2.2 Vegetation

Proposed Action

Transmission line structure replacement activities would require clearing and crushing of vegetation, causing damage to plants, including some plant roots. Compaction of soils by heavy equipment and excavation and trenching required for replacement of structures and counterpoise would also disturb plant roots. The extent of impacts at each structure site would depend on the quality of existing vegetation, the size of the disturbance area, soils, and topography.

At structure replacement sites, vegetation in the 100-foot by 100-foot (0.2-acre) disturbance area would be mowed to the extent necessary and then crushed by construction activities. A total of 255 structures would need replacement, temporarily disturbing approximately 51 acres. Where work would occur near sensitive sites such as wetlands, some disturbance areas could be reduced to a disturbance footprint of 0.05 acre (25-foot radius from the structure center). In the transmission line ROW, vegetation consists primarily of scotch broom, Himalayan blackberry, sword fern, salal, Oregon grape, and weedy herbaceous species. A few transmission structures are in agricultural and rural residential areas. Impacts in the transmission line ROW would be **low-to-moderate** and temporary, as work areas are on previously disturbed sites where vegetation would be allowed to regrow. However, the spreading of subsoils could prevent the regrowth of native vegetation, and mechanized equipment may increase the spread of noxious weeds.

At pulling and tensioning sites, vegetation would be crushed or removed to create a level site to set up equipment. The disturbance area for pulling and tensioning sites is approximately 200 feet by 100 feet (0.5 acre). The project would need approximately 41 tensioning sites, temporarily disturbing approximately 20.5 acres. Impacts would be **low-to-moderate** because vegetation would eventually regrow. At sites where noxious weeds are present, mechanized equipment may increase the spread of weeds to other locations.

Access road improvements requiring light gravelling would occur along approximately 27 miles of roads. There would be some trimming or removal of roadside woody vegetation, mainly herbs and shrubs. Grading of the road shoulder also would remove some herbaceous species. Gravelling and use of mechanized equipment may crush vegetation and compact soil. Impacts would be temporary and **low-to-moderate**, as species along the roadside would be allowed to regrow. Mechanized equipment could increase the spread of noxious weeds. **Low-to-moderate** impacts are anticipated, as access road improvement work would occur in existing access road prisms that have been previously disturbed.

Access road reconstruction requiring grading or more extensive upgrades would occur along 6 miles of roads. There would be 0.4 mile of new road construction, which would permanently eliminate approximately 2.4 acres of vegetation. The maximum depth of ground disturbance for new or

reconstructed roads is 5 feet. Cut and fill in areas with steep slopes or curves, graveling, trimming and removal of roadside vegetation, and the use of mechanized equipment would damage plants, compact soil, and may lead to the spread of noxious weeds. Therefore, impacts would be permanent and **low-to-moderate** because vegetation would not be expected to reestablish in these areas.

A total of 36 new/replacement culverts would be installed, 4 would be repaired, and 14 would be cleaned, totaling work on 54 culverts throughout the project corridor. Culvert replacement and installation in wetter areas along access roads would cause **low-to-moderate** impacts on vegetation, depending on species disturbed. Impacts on wetland plant communities are discussed in Section 3.2.4, Wetlands.

Approximately 761 danger trees would be cut within and adjacent to the transmission line ROW. While almost all tree removal would involve removal of single trees rather than groups of trees, removal would open up small, forested areas to light, making these areas more vulnerable to invasion by weed species, many of which require sunlit areas to grow. In addition, native understory plants that tend to grow in shade may not grow as well in these forest openings.

One new access bridge would be installed. It would be approximately 40 feet long, with an estimated temporary disturbance area of 0.17 acre (50 feet wide and 150 feet long). Bridge construction would require approximately 1 foot of excavation below the streambed. Bridge construction would disturb or remove vegetation and have **low-to-moderate** impacts. Impacts directly abutting the bridge would be **low-to-moderate**, as vegetation is permanently displaced for the structure, but impacts in the overall disturbance area would be **low**, as vegetation would be allowed to regrow. Approximately 0.02 acre of permanent impacts are anticipated from installation of the bridge abutments. Impacts on wetland plant communities are discussed in Section 3.2.4, Wetlands.

Installing temporary staging areas and material yards, repairing two gates, and replacing three gates could disturb or remove vegetation. Staging areas and material yards would occupy up to 8 acres each and would not require ground disturbance. Compaction of soils by heavy equipment and excavation, and trenching required for replacement of structures could also disturb plant roots. Through the implementation of BMPs, these impacts would be **low-to-moderate** because while a small amount of vegetation would be disturbed, the activities would be temporary and occur close to previously cleared areas and previously disturbed areas such as substations. Material yards and storage areas would be located in previously disturbed areas where feasible, and work would be conducted during the dry season to minimize erosion and soil compaction. Existing root systems from cut trees would be left intact to help prevent erosion. Disturbance areas would be returned to their original, pre-construction contours and revegetated with a native seed mix to improve soil stability.

Listed Species

State special-status sensitive plant populations such as Nelson's checkermallow could be present during the construction season, either in vegetative form, blooming, or fruiting, and therefore, vulnerable to disturbance. There is a documented occurrence of Nelson's checkermallow, a state-listed threatened plant species, approximately 1,000 feet south of Structure 2/2 on the Allston-Driscoll line. Nelson's checkermallow was not observed during field surveys of the project footprint and ground-disturbance areas. The ground cover near Structures 2/2, 2/3, and 3/1 on the Allston-Driscoll line appears to be previously grazed based on field observations in March 2022. However, due to the proximity to the

known population of Nelson's checkermallow, pre-construction surveys would be conducted within ground-disturbance areas in the portion of the corridor between Allston-Driscoll Structures 2/2 and 3/4 to confirm whether the species is present (see Table 2-4). If present, exclusionary zones would be established to ensure that the plant is not removed during construction.

While there is a potential presence of this species based on historical data, the establishment of protective BMPs if the species is found during pre-construction surveys would limit the potential for crushing or excavating the plant so that impacts to the species would be **none-to-low**.

Weeds

During and after construction, existing noxious weed populations could spread and colonize disturbed areas. Construction equipment, vehicles, workers, and materials contaminated with seeds, roots, and other weed parts could spread weeds from one work area to another. Bare, disturbed, and compacted soils are vulnerable to weed invasion through natural dispersal, such as wind-blown seeds. Weeds could displace native plants, reducing biodiversity and degrading vegetative communities, whether natural or managed.

Prior to construction, noxious weed infestation areas would be identified for avoidance (as practicable) (see Table 2-4). Measures would be implemented to minimize noxious weed spread, including inspection of vehicles before entering construction areas, remaining on established roads as much as possible, and installation and use of weed wash stations, or use of other appropriate equipment cleaning measures. The potential for noxious weed spread would be **low** with use of the described BMPs.

No Action Alternative

Under the No Action Alternative, the existing transmission lines would not be rebuilt. However, maintenance activities would likely increase as existing structures deteriorate, and more structure repair and replacement could be required. Maintenance of access roads would continue to occur. Emergency repair activities requiring unplanned movement of vehicles through existing noxious weed infestations could potentially allow the spread of noxious weeds. If emergency maintenance is required during the wet season this could limit the ability to avoid sensitive plant species or sensitive habitats. These activities would continue to result in **low-to-moderate** impacts from localized vegetation disturbance and danger tree removal.

3.2.3 Water Resources, Floodplains, and Fish

Proposed Action

Water Resources

Under the Proposed Action, 12 line structures would be located within 100 feet of streams (Table 3-3). Two structures (Driscoll-Astoria Structures 18/4 and 18/5) are located in the 200-foot shoreline areas of the John Day River. The two river crossing structures would be replaced with the most up-to-date lattice structure design New poles would be installed in new pre-drilled holes or re-drilled existing holes. Excavated material and gravel would be used to backfill the holes once the poles are installed. The size of disturbance areas would be minimized to the greatest extent practicable and would employ BMPs such as installing erosion-control measures (e.g., silt fences, straw wattles, and other sediment control

measures) prior to work in or near floodplains and streams, and inspecting and maintaining, as necessary, to ensure their continued effectiveness to minimize sediment discharge into waterways and wetlands (see Table 2-4). For structures planned within 100 feet of waterways and wetlands, excess excavated material would be removed from the site and disposed of at an upland disposal area.

Each structure would have a small area of exposed soils, temporarily, that is unlikely to be a substantial source of sediment to nearby streams. Vegetative buffers between the structures and the structure work areas would help absorb and retain sediments dispersed from work areas. Most construction work would occur during the dry season, which would reduce the potential for runoff and erosion.

H-frame wood pole structures would be replaced with new H-frame wood-pole structures. PCP from wood poles could reach receiving surface streams, although PCP concentrations decrease rapidly with distance and none of the structures would intersect surface water in the project corridor. Driscoll-Astoria Structure 14/1 is the closest wood pole structure to water and is approximately 45 feet from the stream. As described in Section 3.2.1, pole wraps would be used on structures located in wetlands and within 50 feet of wetlands, streams, or floodplains and would be encapsulated or wrapped with an appropriate material to prevent leaching of chemicals. Such poles would be wrapped at least to 18 inches above the ground or channel surface, and the old wood poles would be removed from the project area.

BMPs described in Table 2-4 would be used for structure replacement. Construction vehicles and equipment would be confined to access roads and designated work areas, erosion control measures, such as silt fences and straw wattles, would be installed prior to work in or near wetlands and streams, and temporary matting would be used to prevent soil compaction. Potential impacts from structure replacement to water resources would be temporary and **low**.

Table 3-3. Project Activities near Waters

Transmission Line	Structure Replaced within 100 Feet of Waters	Pulling and Tensioning within 100 Feet of Waters	Staging Areas within 150 Feet of Waters
Allston-Driscoll	Structure 13/1	Near Structures 8/6, 19/2, 21/5	None
Driscoll-Astoria	Structures 4/7, 8/3, 9/2, 12/2, 12/5, 13/5, 14/1, 18/4, 18/5, 19/4, and 20/6	Near Structures 5/1, 12/5, and 20/5	None

There are six pulling and tensioning sites within 100 feet of streams. Each of the pulling and tensioning sites would disturb an area approximately 200 feet by 100 feet (approximately 0.5 acre). Most construction work would occur during the dry season, which would reduce the potential for runoff and erosion. Placement of timber mats may also be required if ground surfaces are not dry. Additional erosion-control measures would be implemented in accordance with the BMPs and mitigation measures provided in Table 2-4. Because water functions are expected to return to pre-construction conditions after construction and restoration, impacts would be **low**.

Mobile guard structures, which can be temporarily positioned on existing developed road surfaces, would be used instead of temporary wood-pole guard structures in and adjacent to water resources.

Although temporary, the mobile guard structures would still have the potential for fuel leaks or other negative consequences. With proper BMPs to ensure soil stability and stormwater control, in addition to the use of timber mats, there would likely be **no-to-low** impacts on water resources.

A total of 36 new and replacement culverts would be installed at existing streams or drainage crossings, 4 existing culverts would be repaired, 14 culverts would be cleaned, 1 new bridge and 1 new ford would be constructed, and 2 existing fords would be repaired or improved as part of the project. Culvert replacement and ford repair/improvement would occur in already disturbed areas, so there would be no new permanent disturbance areas near these streams. All construction work would occur within the in-stream work window if water is present. BMPs (see Table 2-4) would be used to prevent sediment movement downstream such as isolating in-water work areas prior to culvert installations; dewatering work areas, as necessary, for construction and to minimize turbidity; and not discharging turbid water to streams. The culvert slope would not exceed the existing stream gradient, and adjacent temporary and permanent sediment-control structures such as silt fences, check dams, rock armoring, or riprap would be used to prevent erosion or sedimentation. Because erosion and sediment control BMPs would be used during all road work, including near or in streams, and disturbed areas would be mulched and seeded to facilitate restoration, impacts on water resources would be **low**.

There would be no new, temporary, or reconstructed roads in streams. Access road improvements would occur outside of, but adjacent to streams. Access roads would not be widened adjacent to streams; access road widths would be reduced to 12 feet, and the offsets on either side of the road would be reduced to 2 feet, for a total area of disturbance of 16 feet. Access road work adjacent to streams could remove buffer vegetation adjacent to streams, potentially increasing construction-related runoff and erosion. If construction extends into the wet season, traffic on gravel roads would have the largest potential to deliver sediment to stream channels. Because BMPs would be used to minimize sediment runoff to wetlands, access road improvement and travel on roads would result in **low** impacts on water resources.

Removing danger trees from the project corridor could reduce stream shading but is unlikely to cause a detectable increase in water temperature; approximately 37 individual trees would be removed within 50 feet of streams, distributed among 20 different streams throughout the length of the project corridor. Most of the danger trees are clustered with other trees not targeted for removal. Near the John Day River, which is listed on the 303(d) list for water temperature, a dead danger tree proposed for removal is located within 50 feet of the water. The closest danger tree removal to the Clatskanie River, which is also listed on the 303(d) list for water temperature, is approximately 90 feet away and does not overhang or provide shade to the water.

Because most of the trees that would be removed are clustered with other trees that would not be removed, there would be minimal shade loss that would increase water temperature from danger tree removal. Tree removal activities would have a small impact footprint and would not produce fill that would be left in waterways. Because of this and the establishment of BMPs as described in Table 2-4, the impacts on water quality from danger tree removal would be **low**.

Groundwater

Soil compaction during structure and access road work could temporarily impact groundwater recharge by reducing infiltration capacity and increasing surface runoff to streams. However, these impacts are

expected to be temporary in small construction areas spread over a wide geographic area. Impacts on groundwater quality during construction and over the long term could occur from the accidental release of hazardous chemicals used during construction (e.g., fuels, lubricants, solvents), the removal of existing creosote-treated wood poles and creosote-contaminated soil excavated from existing structure holes, and the leaching of PCP from new PCP-treated wood poles into groundwater. Mitigation measures would be used to minimize the spread of PCPs and petroleum products, including proper handling and disposal of creosote-treated wood poles and creosote-contaminated soils; spill prevention, containment, and cleanup; and wood-pole storage methods to minimize the risk to groundwater from the accidental release of hazardous chemicals. However, any spills that would occur would likely be small and localized. BPA would immediately contain and clean up spills and dispose of regulated materials in accordance with applicable federal and state laws.

There are a total of 15 wells located in or within 100 feet of the Allston-Astoria ROW. Landowners are required to mark wells on the ROW and are encouraged to mark wells within 150 feet of the ROW. Prior to the project start, landowners would be notified of work occurring in their area and would be able to request that BPA protect their well heads. BPA would implement mitigation measures where well heads are marked in the field by landowners and those that BPA is notified of, which would help limit chemicals coming into proximity with well heads. Mitigation measures would be used to minimize the spread of PCPs and petroleum products. Such measures would include the proper handling and disposal of creosote or PCP-treated wood poles and creosote or PCP-contaminated soils; pole wraps for poles within water resource areas; spill prevention, containment, and cleanup; and proper storage methods for wood-poles to minimize the risk to groundwater from the accidental release of hazardous chemicals. Any spills that occur would likely be small and localized. BPA would immediately contain and clean up spills and dispose of regulated materials in accordance with federal and state laws. Since groundwater recharge would not be affected and BMPs and mitigation measures (see Table 2-4) would be used to minimize the risk to groundwater quality from the accidental release of chemicals and petroleum products, impacts to water wells and groundwater would be **low**.

Floodplains

The structure work areas for Structures 18/4 and 18/5 along Driscoll-Astoria and Structures 11/3, 10/6, 9/6, 5/7, 5/8, 2/1, 2/2, 1/8, and 1/7 along Allston-Driscoll are within the 100-year floodplain. However, the transmission line ROW is already cleared in these locations and undergoes periodic vegetation maintenance. No additional areas of FEMA floodplain would be permanently filled by the project construction activities. One danger tree would be removed in the 100-year floodplain for the John Day River near Structure 17/8 of Driscoll-Astoria. Along Allston-Driscoll, one danger tree would be removed in the 100-year floodplain for the Clatskanie River near Structure 10/5; two would be removed in the Elk Creek 100-year floodplain near Structure 2/2; and one would be removed in the Beaver Creek 100-year floodplain near Structure 1/7. No new roads would be constructed within the 100-year floodplain. Permanent impacts to improved or reconstructed roads in the floodplain would be filled with soil, rock, and gravel within the existing road prism. Temporary impacts along improved and reconstructed access roads within the floodplain would include crushing or clearing vegetation, and temporary timber matting. Temporarily disturbed areas for culvert and road work would be returned to pre-construction contours and reseeded with a native seed mix. Vegetation that is crushed from project activities would be reseeded and regrow after construction is completed.

Because floodplain impacts would occur primarily along existing access roads or already cleared areas, no floodplain functions would be altered, including flood flow and conveyance, storage, and base flood elevation, resulting in **low** impacts to floodplains.

Fish

All new culverts that would be installed are in intermittent, non-fish-bearing streams. Six culverts would be replaced, nine culverts would be repaired, one new bridge would be constructed, and one ford would be repaired in a fish-bearing stream; however, only three of these support coho salmon or steelhead trout. Replacing and repairing the fish-bearing stream culverts would maintain or improve fish passage and fish access to upstream aquatic habitats. Increases in stream water temperatures could temporarily result from shrubby vegetation removal within the work footprints, although no trees would be removed. Vegetation, including shrubby species, would be reseeded with a native mixture and expected to regrow quickly.

All work on stream crossing structures would be conducted within the approved in-water work windows during a period when fish are least likely to be present. Site isolation to minimize the downstream transport of turbid water would be required if there is flowing water present at the time of construction. BMPs, including erosion and sediment control measures at these work areas, would contain overland flow and typically prevent sediment from entering fish habitat, minimizing temporary impacts from construction activities. If sediments reach fish habitat, sediment inputs are expected to be small pulses and temporary in duration. The aquatic noise and vibration disturbance generated by the removal and replacement of structures within 100 feet of fish-bearing streams would not be expected to exceed background ambient underwater noise levels. If fish are temporarily displaced from waters near construction work areas due to noise and activity, they would be expected to return once the work in that area ceases. BMPs and mitigation measures would be used, including setback distances for fueling and staging areas from water bodies, to minimize spills.

Overall, because the culvert replacements in fish-bearing streams would not permanently remove or degrade fish habitat and would not harm any fish present due to the implementation of BMPs and mitigation measures such as erosion and sediment control measures and work isolation and fish salvage (see Table 2-4), impacts would be **low**.

Sensitive Fish Species

ESA-listed bull trout are not documented to occur in the streams and tributaries that intersect the project corridor and are highly unlikely to exit the Columbia River foraging waters and enter non-spawning freshwater tributaries for the approximately 12 miles that would be required to reach the project corridor. Therefore, there would likely be no impact on bull trout.

There are three streams where project culverts would be either repaired or replaced where ESA-listed stocks of lower Columbia River coho salmon and lower Columbia River steelhead are documented to occur. Other sensitive species that may be impacted by the project are spring and fall Chinook salmon, Pacific lamprey (*Entosphenus tridentata*), summer steelhead/Columbia Basin rainbow trout (*Oncorhynchus mykiss/gairdneri*), western brook lamprey (*Lampetra richardsoni*), western river lamprey (*Lampetra ayresii*), and westslope cutthroat trout (*Oncorhynchus clarki lewisi*). As described above,

confining work to occur within the prescribed in-water work window and use of BMPs during culvert installation work would result in **low** impacts on these ESA-listed and sensitive species.

One new, approximately 40-foot-long access road bridge would be constructed near Structure 5/3 along Driscoll-Astoria. The new bridge would connect two high-quality wetlands currently bisected by the failing culvert. This stream and wetland habitat is a tributary to Gnat Creek that is documented to support ESA-listed fish species. It is likely that coho salmon and steelhead trout could be present at the bridge crossing. Transport of sediment to streams could result in the temporary degradation of water quality, impacting fish species. Through implementation of mitigation measures (see Table 2-4) such as installation of erosion control measures, conducting work within the in-water work window, and restricting construction vehicles and equipment to access roads and designated work areas, impacts to fish species would be low.

No Action Alternative

Since there would be no planned construction, BPA would continue to maintain the transmission line and access roads on an as needed basis. Although roads would be repaired to access structures, comprehensive road improvements to improve drainage and increase culvert size would not likely be made, increasing the risks for slumping and erosion. Initially, impacts on water resources and fish would be the same as existing conditions, with **no-to-low** impacts. Undersized or damaged culverts would remain as is, possibly impeding fish passage and water conveyance abilities. As existing structures and access roads continue to deteriorate and emergency structure repair and replacement are required, impacts could occur. Emergency repairs in areas of or during times of high runoff could cause erosion that may allow sediments to enter adjacent waterbodies and cause increased disruptions to fish. Overall, depending on the nature of the emergency repairs required, the No Action Alternative could result in **low-to-moderate** impacts on water resources.

3.2.4 Wetlands

Proposed Action

The Proposed Action could result in negative impacts on wetlands by adding fill materials where project activities would occur within or adjacent to wetland boundaries, disturbing vegetation and water conveyance through equipment use in wetlands, or if the project changes drainage and wetland hydrology. Impacts on wetlands could reduce functions and values provided by wetlands, such as filtering toxins, providing habitat, and water conveyance abilities. In addition, the Proposed Action has the potential to degrade a wetland's condition, increase stressors to the wetland, and increase wetland sensitivity.

3 structures would be replaced in wetlands (Table 3-4). In addition, 11 structures would be replaced within 100 feet of wetlands. This would result in less than 0.006 acre of permanent wetland fill, and approximately 1.4 acres of temporary wetland fill in the structure work areas. All structures would be replaced in-kind and in the same general locations in already-disturbed areas. Pole wraps would be used on structures located in and within 50 feet of wetlands to contain PCP and help prevent leaching into wetlands. Temporary wetland impacts for all pole replacements would be limited through the use of wetland mats and the implementation of mitigation measures described in Table 2-4. Permanent wetland impacts would be mitigated using in-lieu fee mitigation. By adhering to recommended BMPs for

soil and erosion control, limited disturbance to wetlands through workspace minimization measures, and clear establishment of work areas within wetlands, wetland impacts would be **low**.

Table 3-4. Project Activities in or within 100 feet of Wetlands

Transmission Line	Structures Replaced in Wetlands	Structure Replaced within 100 Feet of Wetlands	Pulling and Tensioning Sites in Wetlands	Pulling and Tensioning within 100 Feet of Wetlands	Staging Areas in Wetlands	Staging Areas within 150 Feet of Wetlands
Allston-Driscoll	5/7	1/3, 1/7, 3/8, 11/4, and 18/1	6 locations near Structures 1/3, 2/1, 10/1, 11/4, 11/6, and 21/5	1 location near Structure 19/2	None	None
Driscoll-Astoria	11/6 and 18/5	4/4, 10/3, 10/4, 11/7, 12/4 and 12/5	4 locations near Structures 8/8, 11/6, 18/6, and 20/5	3 locations near Structures 4/7, 12/4, and 12/5	None	1 location near Structure 10/3

Pulling and tensioning sites, selected because of location and the ability to accommodate pulling equipment, may need to be cleared of interfering vegetation to position the equipment. Following a review of potential sites and application of avoidance and minimization measures, 12 pulling and tensioning sites are anticipated to be located within wetlands and 4 additional pulling and tensioning sites would be within 100 feet of wetlands. Use of the pulling and tensioning sites would be temporary and occur within a reduced work area and would create no permanent wetland impacts. The standard size of pulling and tensioning sites is 200 feet by 100 feet, approximately 0.5 acre. Each pulling and tensioning site located within a wetland has been individually assessed to reduce the construction work area to the smallest size feasible to complete construction activities. Steep terrain, trees, and other obstacles also impact the ability to reduce the work area to accommodate construction equipment. Most construction work would occur during the dry season, which would reduce the potential for runoff and erosion. Temporary mats would be used to minimize impacts on wetland vegetation. All temporary disturbance areas in wetlands would be reseeded with an appropriate native seed mix, and BPA would monitor these areas for adequate growth and implement contingency measures, as necessary. BPA would monitor revegetation until uniform perennial vegetation provides 70 percent or more of the density of coverage that was present prior to earth-disturbing activities. Because wetland functions are expected to return to pre-construction conditions after construction and restoration, impacts from pulling and tensioning sites would be **low**.

There are no temporary staging areas and materials yards within wetlands. However, there is one staging area within 150 feet of a wetland (Table 3-4). The staging areas would occupy up to 8 acres. No hazardous materials storage or service equipment storage/maintenance would be allowed within 150 feet of wetlands. BMPs described in Table 2-4 would be implemented at the staging area near the

wetland, including soil and erosion control, conducting work during the dry season, and clearly establishing work areas. Through implementation of mitigation measures, impacts to wetlands from staging areas and materials yards would be **low**.

Mobile guard structures, which can be temporarily positioned on existing developed road surfaces, would be used instead of temporary wood-pole guard structures in and adjacent to water resources. There would be temporary fill to five wetlands from these guard structures. Guard structure impacts to wetlands would be temporary for the duration of construction and would be placed on timber mats and supported by wood poles. These structures would be removed after construction.

Existing roads that would be improved outside of wetlands and not require complete reconstruction have a 20-foot-wide construction footprint. Road improvements within wetlands would have a reduced footprint and would require minor grading and/or additional fill in order to be accessible for labor and equipment within the footprint of its existing cross section. Work on these roads would occur within the existing road prism to restore the road cross section. A temporary matted direction-of-travel would be constructed which would impact 2 wetlands and result in approximately 0.05 acre of temporary wetland fill. The temporary matted direction-of-travel would require clearing of vegetation and placement of timber matting that would be removed within 6 months of placement. All temporary disturbance areas would be returned to pre-construction contours and reseeded with an appropriate native seed mix, and BPA would monitor these areas for adequate growth and implement contingency measures, as necessary. BPA would monitor revegetation until uniform perennial vegetation provides 70 percent or more of the density of coverage that was present prior to earth-disturbing activities. Through implementation of mitigation measures (see Table 2-4), such as conducting construction activities during the dry season, using existing roads to access work areas and structure locations, installing erosion control measures, and revegetating disturbed areas, wetland functions are expected to return to pre-construction conditions after construction and restoration and impacts would be **low**.

Reconstructing and improving access roads adjacent to wetlands would occur along the existing road ROW in already disturbed areas. Road reconstruction and improvements would not include road widening; access road widths would be reduced to 12 feet, and the offsets on either side of the road would be reduced to 2 feet for a total area of disturbance of 16 feet. Access road work in these areas could remove buffer vegetation adjacent to wetlands, potentially increasing construction-related runoff and erosion. If construction extends into the wet season, traffic on gravel roads would have the largest potential to deliver sediment to wetlands. Because BMPs would be used to minimize sediment runoff to wetlands, access road improvement and travel on roads would result in **low** impacts on wetlands.

Seventeen wetlands would be temporarily impacted by culvert replacements and repair. Culvert repair and replacement would occur in already-disturbed areas, so there would be no new permanent disturbance in these wetlands and 0.04 acre of temporary impacts. Eleven new culverts would be placed in a wetland to provide drainage under an existing road. Nine of these culverts would improve drainage and the hydrologic connection between wetlands where an access road currently bisects wetlands. Two culverts would be installed where existing wetlands may have developed in the roadbed from compaction and poor drainage. Culvert installation, replacement, and repair work would occur primarily in the existing road prisms, although culvert work would result in temporary vegetation clearing near the inlets and outlets of the culverts. The temporary disturbance areas for culvert work would be regraded to pre-construction contours and would be mulched, seeded, and planted as part of design

plans and specifications. Mitigation measures and BMPs listed in Table 2-4 would be used, and wetlands are expected to return to pre-construction conditions after construction. Wetland impacts would be **low**.

One new approximately 40-foot-long access road bridge would be constructed and would replace a failed culvert. The disturbance footprint for this bridge installation would be 50 feet wide along the waterbody and 150 feet long along the road (total 0.02 acre of temporary disturbance). The new bridge would connect two high-quality wetlands currently bisected by the failing culvert and eroding access road. Bridge construction would result 0.02 acres of permanent wetland fill of soil and rock, and 0.02 acre of temporary fill where timber matting and erosion and sediment control measures will be used during construction.

Approximately 10 danger trees would be removed within 50 feet of wetlands, although none would be removed in a wetland. Danger trees would be felled away from wetlands and removed. The danger trees do not provide functions such as water filtration or storage but may provide shade, perching, or nesting habitat for wildlife species that use the wetland. Because the removal of trees would not remove or degrade wetlands but could affect species that visit the wetland, impacts would be **low**.

No Action Alternative

Under the No Action Alternative, existing structures and some access roads would continue to deteriorate, requiring structure replacement and road improvement. Culverts would be left in place, which could result in impounding water conveyance ability, an increase in the potential for erosion and sediment release, and possibly causing deterioration in wetland functions. Access roads would only be improved on an as needed basis, which could cause erosion and sediment control issues. Emergency repairs may not be able to avoid wetlands, which could cause a sediment increase to wetlands, removal or damage of vegetation, degrade habitat quality, and negatively impact the wetlands' ability to store water. Emergency repair to structures could also degrade wetland quality if wetlands are unavoidable to access structures. Impacts from emergency or planned maintenance activities on wetlands would be medium to **low**.

3.2.5 Wildlife

Proposed Action

Degradation of wildlife habitat would occur temporarily where vegetation is removed and if invasive plants establish themselves in areas disturbed by construction activities. Non-native plants provide poor forage for grazing animals, and impenetrable thickets of weed species can impede wildlife movement. Impacts on important wildlife habitats such as wetlands and riparian corridors are largely avoided by the project, and some vegetation removal in riparian areas next to access roads would be temporarily impacted during construction at the culvert crossings. Impact areas for these crossings are anticipated to be confined to 25 feet upstream and downstream of the culverts. In addition, these impacts are predominantly within previously disturbed areas in the ROW and impacts on riparian habitats and species would be localized and **low**.

Impacts from vegetation clearing/disturbance and access road work could cause incidental injury or mortality to wildlife or temporarily displace them from habitat areas. Danger tree removal and vegetation clearing could affect common wildlife species in areas where ongoing periodic vegetation

management activities occur along the transmission line ROWs. Wildlife, especially nesting birds, could be temporarily displaced by removing danger trees. Danger tree removal would be avoided between February 1 and September 23 to minimize displacement of nesting birds and to avoid injuring bats. Pre-construction nest surveys would be conducted within a 0.5 mile buffer outside of the ROW to identify active bald eagle nest, along the ROW to determine the presence of any raptor or other bird nests on structures that are planned for replacement, and where work would occur. If nests are found on the structures to be replaced, they would be removed outside of the nesting season. If nests are found outside of the ROW but within the disturbance buffer, BPA would avoid construction activities within 0.5 mile of an active bald eagle nest during the breeding season and avoid snag and large tree removal to the extent practicable. Helicopter use would also be restricted within 1,000 feet of the nest based on disturbance guidelines for operating aircraft.

Impacts on wildlife from noise and construction activities would vary depending on the proximity to wildlife and the duration of the noise and activity. Increased noise from heavy equipment during construction and the transportation of equipment to and between sites would temporarily exceed ambient noise levels, potentially displacing wildlife. Because noise and activity levels would be temporary and wildlife would be expected to return after construction is complete, impacts would be **low**.

It is not anticipated that the use of a helicopter would be required; however, if conditions for some of the structures prevent access by construction vehicles, then poles and equipment may be delivered to the work site by helicopter. If this occurs, it would produce the loudest noise during construction and consequently has the potential to disturb wildlife or any ESA-listed species occurring within a roughly 4-mile area where noise would be above background levels. The elevated noise has the potential to cause temporary disturbances to individuals and may elicit a behavioral response or cause wildlife to alter their movements and avoid the area. The project vicinity has many additional sources of noise from highway and rail traffic as well as agricultural and active timber operations. Project construction activities would be conducted during daylight hours, and noise disturbance would be limited to this time period and be temporary. For these reasons, impacts would be **low**.

Overall, impacts on common wildlife species due to construction activities would be **low** because most of the species are highly mobile and would avoid temporary construction disturbance. Habitat changes would be minimal compared to the current land uses in the habitat adjacent to the transmission ROW and access roads. The spread of noxious weeds would be minimized though mitigation measures, and the installation of bird flight diverters would reduce the risk of collision with conductors.

After completion of project construction, impacts on terrestrial wildlife species would no longer occur. Bird collisions with conductors could occur; however, conductor spacing on 115-kV transmission lines is wide enough that electrocution of raptors and large birds is rare. Bird-conductor collisions are more likely in areas where the line crosses rivers or ridges that can be flyways for birds and other high bird-use areas. To reduce the potential for collision, bird flight diverters would be placed on the conductors in these higher-risk locations. The bird flight diverters would be placed on the two outside conductors (there are three on this line), spaced 30 feet apart, and offset from each other. Since the existing line does not have bird diverters, placement of the diverters would help reduce the current potential for avian collisions – a beneficial impact.

Listed Species

Western Toad

All construction work would occur in the cleared transmission line ROWs and along existing roads and would avoid impacts to sensitive habitats including riparian and wetlands to the extent feasible. The state-listed western toad is a sensitive species and an Oregon Conservation Strategy Species. Western toads utilize various habitats around wetlands, ponds, slow-moving rivers, and streams. Installing new culverts would disturb stream banks along roads. Because the streams where work would occur are intermittent, work would occur in the dry season, and the western toad would likely not be present or would be temporarily displaced; impacts would be **low**.

Townsend's Big-eared Bat

Townsend's big-eared bats are an Oregon state listed sensitive-critical species that inhabit conifer and mixed forests throughout the region, including the project area. They use caves, mines, and isolated buildings for day and night roosting, maternity roosts, and hibernacula and also make use of hollow trees and bridges for day or night roosting. Project construction would not impact caves, mines, or isolated buildings, and would therefore, have no effect on maternal colonies or hibernacula. Removing danger trees could impact potential roost trees; however, tree removal would not measurably impact existing conifer and mixed forest stands. Construction activities and associated noise may disturb individual bats that may be roosting in the project vicinity; however, noise would be restricted to daytime working hours and would not impact peak activity during the night, lessening impacts to bats. Additionally, danger tree removal would be avoided between February 1 and September 23 to minimize displacement of nesting birds and to avoid injuring bats. Therefore, impacts to Townsend's big-eared bats would be **low**.

Marbled Murrelet

The marbled murrelet is a federally threatened species and assumed to be potentially present in suitable nesting habitat located along the project corridor at miles 19 and 21 on the Alston-Driscoll line and miles 4 to 7 and 21 on the Driscoll-Astoria line. Construction activities along the project corridor at any one location would be temporary, as work moves along the line, and would occur intermittently over several days to weeks. Construction activities, including road improvements, danger tree removal, hauling wood pole structures, and use of helicopters, chainsaws, and heavy equipment within 0.25 mile of marbled murrelet nests could elevate noise above ambient levels and potentially disrupt normal behaviors, such as feeding attempts. Potential impacts to nesting individuals would be limited during the nesting season (April 1 to September 23) by restricting helicopter use and construction activities in the vicinity of suitable marbled murrelet habitat to 2 hours after sunrise and would cease 2 hours prior to sunset. During the non-nesting season, there is low probability that murrelets would be utilizing habitat near the project, as they spend the majority of their time along the coast. For these reasons, impacts on marbled murrelets would be **low**.

Danger trees, identified along the edge of potentially suitable marbled murrelet nesting habitat, include red alder (70 individuals ranging in size from 8 to 25 inches dbh), big leaf maple (*Acer macrophyllum*) (37 individuals ranging in size from 11 to 39 inches dbh), Douglas fir (13 individuals ranging in size from 14 to

37 inches dbh), Western red cedar (5 individuals ranging in size from 20 to 58 inches dbh), and Western hemlock (6 individuals ranging in size from 20 to 32 inches dbh). Danger tree removal would occur along the edges of existing cleared ROW and would not measurably impact the adjacent conifer stands. The danger trees identified for removal do not contain any nests and are not suitable for nesting by marbled murrelet. Potentially suitable marbled murrelet nesting habitat is conservatively assumed to be occupied, for that reason to minimize physical impacts of tree removal to nesting murrelets, danger tree removal would occur outside the species nesting season, April 1 to September 23. Potential impacts from the project would therefore be confined to temporary construction noise.

Northern Spotted Owl

Suitable nesting habitat for the federally threatened northern spotted owl is not present in the project corridor or adjacent forest stands, and project activities would be located more than 0.25 mile from any potential nesting habitat. Some potentially suitable foraging and dispersal habitat is present within patches of older conifer forest in the areas potentially impacted by construction noise and helicopter use. No suitable foraging or dispersal habitat would be impacted by ground-disturbing activities, and no nest or roost trees would be removed as part of the project. As described above for the marbled murrelet, construction noise would be temporary, move along the corridor as construction progresses and limited to periods outside of the nesting season; therefore, it would not impact nesting northern spotted owls.

It is possible that project activities could result in short-term disturbance to spotted owls that may be moving through the project corridor. Such flush responses that occur away from an active nest site are considered to be insignificant because the owls are simply moving away from a source of disturbance, rather than being forced to flush away from an active nest site. Potential impacts on spotted owls from heavy equipment noise and activity (e.g., disruption of nesting behavior) would be **low**.

Columbian White-tailed Deer

Columbian white-tailed deer are listed as federally threatened and do not inhabit areas directly impacted by the project construction footprint and vegetation disturbance areas. Several populations inhabit areas along the Columbia River north of Clatskanie and on larger islands in the Columbia River, including Wallace Island, Westport Island, Puget Island, Tenasillahe Island, Brownsmead, and Horseshoe Island (USFWS 2013). If required, helicopter use during construction may generate noise that has the potential to disturb deer in these areas, but the levels of noise generated are not expected to elicit behavioral responses that rise to the level of harm or harassment. However, if young fawns are present, typically between June 1 and July 15, impacts could be greater if an adult female is spooked or flushed and possibly abandons a fawn. Helicopter use in areas where deer are present would be conducted at standard regulated altitudes, as there are no landing areas or supply yards in these areas. The use of helicopters outside the fawning period would also avoid the potential to disturb mothers and fawns, and noise impacts would be **low**.

Streaked Horned Lark and Yellow-billed Cuckoo

The project is located outside potential breeding habitat for federally threatened streaked horned lark, but if helicopter use is needed during construction this may elevate noise above background levels during the breeding season (March 15 to August 15) within areas containing potential breeding habitat along the lower Columbia River. If streaked horned lark individuals are present in the project area during

helicopter activities, individuals could be temporarily disturbed by in-air noise. No ground disturbance would occur in suitable breeding habitat. The levels of noise generated during possible helicopter use as part of the Proposed Action would be centered on the project corridor and at least 2 miles away from potentially suitable habitat and are not expected to elicit behavioral responses that rise to the level of harm or harassment. No ground disturbance, vegetation removal, or tree removal would occur within or adjacent to critical habitat, and the project would therefore have no effect on streaked horned lark critical habitat.

Yellow-billed Cuckoo

The project area is within the historic breeding range of the federally threatened yellow-billed cuckoo, and some suitable riparian habitat is present along the Columbia River within the area potentially impacted by helicopter noise. No suitable riparian habitat for yellow-billed cuckoo would be impacted as part of the project, and yellow-billed cuckoos are extremely rare visitors to the region.

Species could be temporarily displaced from some of their normal foraging areas by construction noise and activity. Tree removal would eliminate some habitat that could be used by yellow-billed cuckoo. There is also still the potential for avian collisions with the conductor in areas where bird flight diverters would not be installed. Through implementation of mitigation measures and BMPs listed in Table 2-4 such as preconstruction surveys for birds and restricting construction vehicles to access roads and designated work areas would be used to lessen impacts to yellow-billed cuckoo. There would likely be **no impact** to the species.

No Action Alternative

Under the No Action Alternative, reconstruction of the existing transmission line would not occur, and maintenance activities would continue. Depending on the timing of normal or emergency activities, vegetation removal could result in the mortality or disruption of nesting birds, or construction noise could disturb wildlife such as marbled murrelets during critical periods (such as nesting/breeding). Overall, depending on the nature of the emergency repairs required, the No Action Alternative could result in medium-to-**low** impacts, if emergency repairs are required during the sensitive bird nesting seasons.

3.2.6 Cultural Resources

Proposed Action

The project would not adversely affect the characteristics that make the transmission lines eligible for listing in the NRHP. Alterations to the property would be consistent with the Secretary of the Interior's (SOI) Standards for the Treatment of Historic Properties (36 Code of Federal Regulations [CFR] part 68) and would follow applicable guidelines. Based on the BPA Multiple Property Document, in-kind replacement of structures does not adversely affect integrity if the as-built type and material are retained, as integrity is affected only by "replacing a major percentage of the line with a different pole design or material" (Kramer 2012:46). In addition, the three other BPA transmission lines within the APE for the Proposed Action would not be physically affected and would receive only temporary, less-than-adverse effects due to access road use and improvements in their vicinity. Therefore, the Proposed Action would have **no-to-low** adverse effect on any of the BPA transmission lines located in the APE.

To support line work, the Proposed Action would also include minor additions to the Allston Substation Switchyard, a contributing resource to the NRHP-eligible Allston Substation Historic District; however, these alterations would include in-kind replacement of less than 40 percent of the switchyard equipment. Alterations to the property would be consistent with the SOI's Standards for the Treatment of Historic Properties (36 CFR part 68) and would follow applicable guidelines. In addition, the Proposed Action also includes replacing two transmission line structures within the fence of the Driscoll Substation Switchyard; however, no switchyard equipment would be physically affected by the in-kind structure replacement activities. Therefore, the Proposed Action would have **no-to-low** adverse effects on any of the BPA substations located in the APE.

Two segments of the APE for the Proposed Action cross through the historic property at 16261 Hall Road in Clatskanie; however, structure replacement activity would not physically affect the property's buildings. Between Hall Road and Structure 12/6 of the Alston-Driscoll transmission line, the property's existing gravel driveway and dirt access road (Road 2-012-060) are included in the APE for the Proposed Action due to anticipated access road use and improvements between Hall Road and Structure 12/6. Access road improvement activities at this location are anticipated to include only placement of gravel on the existing gravel driveway and dirt access road and would not physically affect the property's character-defining features. In addition, activities within the APE for the Proposed Action would not cause physical destruction or damage to any part of the property. Alterations to the property would be consistent with the SOI's Standards for the Treatment of Historic Properties (36 CFR part 68) and would follow applicable guidelines. Project-related construction activities within the APE for the Proposed Action could result in temporary increases in noise and vibration, as well as more truck traffic, traffic congestion, temporary changes to access, and increased dust. The presence of construction equipment within the APE for the Proposed Action could result in short-term, minor, visual changes to the setting. None of the planned activities within the APE for the Proposed Action would have the potential to affect the character-defining features of the property. In addition, all effects related to construction activities would be temporary and minimal. Therefore, the Proposed Action would have **no-to-low** adverse effects on the property at 16261 Hall Road.

The APE for the Proposed Action extends approximately 120 feet north from the BPA ROW into the Gnat Creek Fish Hatchery property to include a short segment of asphalt access road (Road 1-005-061) between the hatchery pools and the BPA ROW. The road is included in the APE due to anticipated access road use to reach Structure 5/6 of the Driscoll-Astoria transmission line. The road is not anticipated to have any improvements. A section of Gnat Hatchery Road and a vehicular access path through the facility adjacent to the hatchery pools would be used for direction of travel to access the APE for the Proposed Action (Road 1-005-060); however, no improvements or other actions are proposed along the direction-of-travel roads. Structure 5/6 is adjacent to and abuts the Gnat Creek Hatchery; however, structure replacement activities would occur within the existing BPA ROW.

Project activities within the APE for the Proposed Action would not cause physical destruction or damage to any part of the Gnat Creek Fish Hatchery property. Alterations to the property would be consistent with the SOI's Standards for the Treatment of Historic Properties (36 CFR part 68) and would follow applicable guidelines. Project-related construction activities within the APE for the Proposed Action could result in temporary increases in noise and vibration as well more truck traffic, traffic congestion, temporary changes to access, and increased dust. The presence of construction equipment

within the APE for the Proposed Action could result in short-term, minor, visual changes to the setting. None of the planned project activities within the APE for the Proposed Action would have the potential to affect the character-defining features of the property. In addition, all effects related to construction activity would be temporary and minimal. Therefore, the Proposed Action would have **no-to-low** adverse effects on the Gnat Creek Fish Hatchery property.

No known archaeological resources occur within the APE for the project; therefore, rebuilding the Allston -Astoria transmission lines would not affect any historic properties of an archaeological nature. Construction activities could result in disturbance to unknown cultural resources through accidental discovery, depending on the extent of the resources and their proximity to structures and access roads. Use of mitigation measures (Table 2-4) would ensure that any previously undiscovered resources found would be managed properly and would minimize any inadvertent disturbance or destruction of cultural resources from the Proposed Action, resulting in **no-to-low** impacts.

No Action Alternative

No known archaeological resources are within the APE. However, under the No Action Alternative, impacts from ongoing maintenance and emergency repairs could potentially include ground disturbance of unknown archaeological sites. Activities would be similar to existing practices, although the frequency and scope of maintenance activities would likely increase as existing structures deteriorate and more structural repairs and replacements are required. Impacts from continued routine maintenance of the existing line and emergency repairs could range from **no-to-low**, depending on the level and amount of disturbance, the location of the disturbance, and the eligibility of the cultural resource for listing in the NRHP.

3.2.7 Transportation

Proposed Action

During construction there would be a temporary increase in traffic and congestion on nearby roads from construction vehicles moving to job sites, and larger construction vehicles delivering equipment and materials. Equipment and materials delivery to construction areas would cause short term traffic delays along nearby city and county roads, state highways, narrow rural roads, and transmission line access roads. Landowners may experience disruptions to daily activities from construction and delivery vehicles driving and parking on private roads serving as access routes.

At roadway crossings, replacement of old structures and stringing of new wires could affect traffic flow through brief lane closures. Access to the transmission line from county or state roads could cause congestion at access points and would cause temporary traffic delays. Traffic control would be established at entry points to access the transmission line and at roadway crossings. Traffic control is anticipated to be established at access points, county and city roadway crossings, and intersections for an average of 2 days during construction. At larger highway crossings, such as at OR-202, US-30, and HWY-47, traffic control would be stationed for a maximum of 4 days.

Use of and access to private, county, or state roads would not change significantly in or near the project corridor. Temporary traffic delays during construction could occur where the transmission line construction crosses roads but would not result in substantial impacts. Residents would be notified of

upcoming construction activities and potential disruptions. BPA would provide Oregon Department of Transportation (ODOT) with locations of ingress/egress from the project's access roads onto ODOT highways. There would be traffic control plans for roadway crossings as well as areas where access road improvements are occurring. With the implementation of mitigation measures such as distribution of proposed construction schedule to local landowners and businesses, establishing traffic control and warning signs of construction activities at roadway crossings and access points, and coordination with ODOT on highway crossings, impacts to transportation would be minimal and **low**.

No Action Alternative

Under the No Action Alternative, BPA would not rebuild the transmission line, and therefore, would not result in temporary impacts to transportation near the ROW. Impacts from ongoing maintenance and emergency repairs could potentially include temporary blockage of access road entry at existing ODOT roads, and less planning to minimize delays and access issues which could lengthen transportation delays. Impacts to transportation from the No Action Alternative would be **low**.

3.2.8 Public Health and Safety

Proposed Action

The transmission lines are in close proximity to multiple residences and businesses. There are approximately 650 residences within 500 feet of the ROW. The transmission line rebuild would have temporary and minor impacts to public health and safety during construction, including risk of injury to individuals or property damage. Measures would be put in place to minimize risk to public health and safety for residents along the ROW and local businesses. Construction activities and schedule would be communicated to residents and businesses prior to construction and would be updated weekly. There would be no loss of power during construction. Safety signage would be clearly established in and around the work areas, with a 150-foot buffer around construction zones near residential properties and businesses to limit risk to individuals. Construction safety buffers would be indicated by signage and fencing where necessary. Safety personnel would be present during construction to ensure non-construction individuals do not access the work sites during construction. BPA would provide businesses and residents with contact information if there are questions or concerns about construction activities. Impacts to public health and safety with the identified mitigation measures and BMPs would be **low**.

No Action Alternative

Under the No Action Alternative, BPA would not rebuild the transmission line. Impacts from ongoing maintenance and emergency repairs could result in a **high** impact to public health and safety. Continued operation of the aging transmission line would result in potential public safety hazards due to the operation of older, less reliable structures and associated equipment. Further, depending on the location of and magnitude for the need for emergency repair, power delivery could be restricted, resulting in the loss of power. Depending on the duration of the power loss, impacts on public health and safety from the No Action Alternative could range from **low** if no emergency outages are realized to **high** if a prolonged emergency outage occurred.

3.3 Cumulative Impacts

Cumulative impacts are the effect on the environment that results from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions regardless of which agency (federal or non-federal), organization, or person undertakes such other actions (40 CFR 1508.1(g)(3)). The effects of past actions in the vicinity of the Proposed Action are considered to form a part of the affected environment baseline for each resource. Past actions that have adversely affected natural and human resources in the project corridor include construction and maintenance of the existing transmission system, silvicultural and agricultural activities, highway construction, transmission line access road construction, communication site construction, and rural residential development.

3.3.1 Reasonably Foreseeable Future Projects

Reasonably foreseeable future actions considered in the cumulative effects analysis include the following:

- BPA would continue to operate and maintain other transmission lines in and near the project. Routine work may include hardware replacement, vegetation management, danger tree removal, and minor access road work.
- Oregon Department of State Lands (DSL) would continue to manage state lands in the project corridor and adjacent areas for marbled murrelet and their habitat.
- Forestry activities would continue on Oregon Department of Forestry lands, including road construction, timber harvest, planting, thinning, and other management activities.
- Agriculture activities would continue in and adjacent to the ROW.
- Residential development may continue in the vicinity of the project.

3.3.2 Cumulative Impacts

The Proposed Action, in combination with past, present, and reasonably foreseeable future actions, could potentially cause cumulative impacts on the resources described in Section 3.2 of this EA. The effects remaining after avoidance and minimization measures are the effects that could contribute to cumulative impacts. The following analysis describes these potential cumulative impacts from the remaining effects of the Proposed Action.

3.3.3 Soils and Geologic Hazards

Past, present, and future activities that affect soils in the project corridor are primarily forest management, transmission line maintenance, and agricultural activities, including road and landing construction, timber skidding, and tree planting. Agricultural activities near the project ROW would continue to disturb soils during the planting and harvest cycle and from grazing.

The Proposed Action would contribute to cumulative effects on soils through compaction and reduced productivity around structures and landings, and from erosion along access roads in areas with steep slopes. These effects would decrease when the disturbed areas return to existing conditions as vegetation matures and soils stabilize. With erosion control measures implemented to reduce the risk

for erosion (Table 2-4), the Proposed Action, when combined with other activities in the project area, would have **low** cumulative impacts on geology and soils.

3.3.4 Vegetation

Past and present transmission line clearing, tree removal, access road construction and maintenance, and silvicultural activities have caused changes in vegetation composition in the project corridor, decreasing the diversity of native vegetation and introducing non-native vegetation, including noxious weeds.

Reasonably foreseeable future actions, including BPA's vegetation management, danger tree removal, and ongoing forest management would continue to impact vegetation. The Proposed Action would have low-to-moderate impacts to vegetation, both in uplands and wetlands, modifying existing vegetation species cover, distribution and dominance. Although BMPs would be used to minimize the spread of invasive plants by the Proposed Action (Table 2-4), it is possible that impacts would still occur. Soil compaction with reduced soil productivity would make it difficult for native species to recover, increasing the potential for noxious weed spread, especially at structure sites. The Proposed Action, when combined with other activities in the project area, would have **low-to-moderate** cumulative impact on vegetation through the spread of invasive plant species, as well as through the modification of existing vegetation.

3.3.5 Water Resources, Floodplains and Fish

Past and ongoing silvicultural activities and transmission line activities in the project corridor, including construction of roads across streams and in riparian areas, have impacted streams, floodplains, and fish. Future forest management activities with road construction and transmission line access road maintenance are expected to continue to contribute to impacts on water resources and fish by disturbing riparian corridors, increasing stream sediment, removal of vegetated areas, and degradation of suitable habitat.

Replacing the transmission line structures would not change floodplain function as existing structures would be replaced by new structures using the same approximate footing locations. Access road work would contribute to a cumulative impact on floodplain function through the introduction of fill, removal of vegetation, and potential sedimentation. The cumulative impact of the Proposed Action and other past, present, and reasonably foreseeable projects on floodplains would be **low**.

Cumulative impacts to fish and fish habitat in the project area include past and current impacts from agriculture, forest management, and transmission line corridor maintenance. Stream and habitat alteration, including short-term localized sediment inputs, would continue to occur because of ongoing forest management, ROW maintenance, and road-related activities. Long-term sediment reduction due to the proposed access road and drainage improvements would benefit localized stream conditions and fish habitat, while culvert and bridge replacements would remove fish passage barriers, providing new access to upstream habitat.

The Proposed Action could temporarily disturb streams and water quality during construction from erosion and sedimentation. Use of BMPs would reduce impacts (Table 2-4). Because the anticipated post-construction conditions in the transmission line ROW and access roads would be similar to existing

conditions, the Proposed Action would have a **low** cumulative impact, when combined with past, present, and reasonably foreseeable future actions, on water resources and fish.

3.3.6 Wetlands

Wetlands in the project corridor have been cleared and filled by past and ongoing forest management, agricultural uses, road construction, and construction of the transmission line. Future forest management and access road maintenance activities may contribute to additional wetland disturbance from clearing and fill. Wetland impacts could be expected to continue to occur from agricultural activities, forest management, and development. Future projects in the vicinity would be required to avoid, minimize, and compensate for any potential impacts to wetlands under federal and state laws, but could still contribute to a cumulative loss of function or value at the local level.

The Proposed Action would have limited temporary impacts on wetlands from structure work and access road improvements. There would be less than 0.01 acre of permanent wetland impacts under the Proposed Action; however, these impacts would be mitigated, as described in Table 2-4. Due to the limited quantity of permanent wetland impacts, the Proposed Action would have very **low** cumulative impacts on wetlands when combined with past, present, and reasonably foreseeable future actions.

3.3.7 Wildlife

Past and present forest management, access road construction and use, and transmission line construction have had a cumulative impact on wildlife and their habitat in the project corridor. The clearing of land for forest management, utility infrastructure, and other uses have resulted in loss of wildlife habitat.

Impacts from the Proposed Action would generally be limited to temporary noise disturbance and habitat clearing for danger tree removal. The permanent alteration of vegetation communities from structures replaced in new locations would comprise most of the permanent impacts but this impact would be negligible. These activities would occur within existing disturbed habitats within the ROW. Some disturbance to behaviors or temporary use of the ROW during construction activities, as well as potential impacts to nesting/breeding may occur, but generally, residual impacts would not affect regional populations of wildlife (e.g., wildlife movement pathways or bird populations). Accordingly, the cumulative impact would be **low-to-moderate** when considering the Proposed Action in combination with other past, ongoing, and reasonably foreseeable future actions.

3.3.8 Cultural Resources

The cultural resources survey did not identify any archaeological resources within the project, and while 24 historic built-environment resources eligible for listing in the NRHP were identified during the survey, no adverse effects are anticipated as a result of the project. Past and present actions that likely impacted known and unknown cultural resources include forest management practices, access road and transmission line construction, residential development, and agricultural activities. Forest management practices, agricultural use, and residential development, as well as transmission line maintenance activities are expected to continue into the reasonably foreseeable future and have the potential to disturb undiscovered cultural resources. Given that the Proposed Action occurs in previously disturbed transmission line ROWs and access roads, and with the use of BMPs (Table 2-4), cumulative impacts on

cultural resources are anticipated to be **low** when combined with past, present, and reasonably foreseeable future actions.

3.3.9 Transportation

Transportation in the corridor has experienced incremental changes due to past and present development, and this trend is expected to continue. New developments would result in increased traffic in the surrounding area, however, increased traffic associated with the project would be limited to the construction period. The project would be expected to have a **low** cumulative impact on transportation when combined with past, present, and reasonably foreseeable future actions.

3.3.10 Public Health and Safety

Past and ongoing activities along the transmission line right-of-way include timber harvest, access road maintenance, and some residential and industrial development. These activities all have the potential for risks to public health and safety from operating heavy machinery to exposure to hazardous materials. The effects of the project would be mitigated through safety and mitigation measures aimed at reducing the risks from operation maintenance and exposure to hazardous materials. The project would be expected to have a **low** cumulative impact on public health and safety when combined with past, present, and reasonably foreseeable future actions.

4 Environmental Consultation, Review, and Permit Requirements

Several federal and state statutes, implementing regulations, Executive Orders, and other consultation, review, and permit requirements are potentially applicable to this project (see Table 4-1). In Table 4-1, **Error! Reference source not found.**similar resources (e.g., vegetation and wildlife) are combined when statutes or regulations overlap multiple resource areas.

Table 4-1. Applicable Statutory, Regulatory and Other Requirements

Resource	Potentially Applicable Requirement	Applicability
All Resources	National Environmental Policy Act (NEPA), as amended (42 U.S.C. § 4321 *et seq*.)	BPA has prepared this EA pursuant to regulations implementing NEPA, which requires federal agencies to assess, consider, and disclose the impacts that their actions may have on the environment to the public before major federal actions are taken.
All Resources	Council on Environmental Quality Guidance for Federal Departments and Agencies on Indigenous Knowledge (November 30, 2022)	Consistent with CEQ regulations and related guidance including CEQ's November 30, 2022 Guidance for Federal Departments and Agencies on Indigenous Knowledge, BPA has engaged affected communities, Tribes, and Indigenous Peoples including the Confederated Tribes of the Grande Ronde and the Confederated Tribes of Siletz to inform the assessment of environmental effects.
Vegetation, Fish, and Wildlife	Endangered Species Act of 1973 (16 U.S.C. § 1531 *et seq*.)	BPA submitted a Biological Assessment to USFWS in support of formal consultation to address potential impacts on ESA- listed species including marbled murrelet, northern spotted owl, streaked horned lark, yellow-billed cuckoo, Columbian white-tailed deer, and marbled murrelet critical habitat (BPA 2023a). BPA plans to use NOAA National Marine Fisheries Service's 2016 Programmatic Biological Opinion for Standard Local Operating Procedures for Endangered Species for BPA's transmission line and access road actions in Oregon, Washington, and Idaho (SLOPES BPO) to address effects on listed salmon (lower Columbia River coho salmon, lower Columbia River fall-run Chinook Salmon, and lower Columbia River winter-run steelhead). The BPA SLOPES PBO provides take coverage for most BPA maintenance activities, including transmission line rebuild projects.

Resource	Potentially Applicable Requirement	Applicability
Vegetation, Fish, and Wildlife	Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) of 1976 (16 U.S.C. 1801 *et seq*.)	Pacific salmon Essential Fish Habitat is administered under the amended Magnuson-Stevens Act; Essential Fish Habitat for the Pacific salmon fishery, including Chinook salmon and coho salmon, are found in streams in the project corridor. Compliance with the Magnuson-Stevens Act will be achieved through compliance with BPA's SLOPES PBO.
Vegetation, Fish, and Wildlife	Bald and Golden Eagle Protection Act (Eagle Act) of 1940 (16 U.S.C. § 668–668d)	Bald eagles are present within 4 miles of the project corridor along the Columbia River. No nests were observed in or adjacent to the project ROW or access roads during field surveys in 2022. There are no known occurrences of golden eagles in the project corridor. If a nest is identified, BPA would comply with the Bald and Golden Eagle Protection Act by avoiding construction activities within 0.5 mile of an active bald eagle nest during the breeding season and avoiding snag and large tree removal to the extent possible.
Vegetation, Fish, and Wildlife	Migratory Bird Treaty Act of 1918 (16 U.S.C. § 703–712) Responsibilities to Federal Agencies to Protect Migratory Birds (Executive Order 13186)	Many bird species protected under the Migratory Bird Treaty Act are present in the project corridor, and some undoubtedly nest in the general vicinity or the corridor. Potential impacts on nesting birds are described in Chapter 3 of this EA. BPA would meet its responsibilities under the Migratory Bird Treaty Act with mitigation measures, such as using seasonal timing restrictions during the breeding season. Bird diverters and perch deterrents also would be installed on conductors in high bird-use areas.
Vegetation, Fish, and Wildlife	Fish and Wildlife Conservation Act (16 U.S.C. § 2901 *et seq*.) Fish and Wildlife Coordination Act (16 U.S.C. § 661 *et seq*.)	BPA has consulted with the USFWS and ODFW and will incorporate BMPs to avoid and minimize potential impacts on fish and wildlife resources. Impacts to fish and wildlife are described in Chapter 3.
Vegetation, Fish, and Wildlife	Oregon Department of Fish and Wildlife Fish Passage Requirements (ORS 509.585(1))	BPA has consulted with ODFW and incorporated ODFW recommendations to avoid and minimize potential impacts to fish resources. Six culverts and one bridge would be installed or replaced in waterbodies identified as fish bearing. As a federal agency, BPA is not required to comply with state and local approvals or permits; however, BPA strives to meet or exceed these substantive standards and policies of state and local plans and programs to the maximum extent practicable. As such, BPA has prepared fish passage plans for ODFW review to ensure that the project components located in fish-bearing waterbodies do not present a fish passage issue.

Resource	Potentially Applicable Requirement	Applicability
Waters, Wetlands, and Floodplain Protection	Clean Water Act (33 U.S.C. § 1251 et seq.) Oregon's Removal-Fill Law (ORS 196.795-990) Floodplain/Wetlands Environmental Review Requirements (10 Code of Federal Regulations [CFR] 1022.12) Floodplain Management Executive Order 11988 Protection of Wetlands Executive Order 11990	BPA would obtain the necessary permits for this project as regulated under Clean Water Act Sections 401, 402, and 404. Potential impacts on floodplains and wetlands from the Proposed Action and mitigation for these impacts are described in detail in Chapter 3. Wetland and water impacts are described in Section 3.2.4. Applicants receiving a Section 404 permit from the U.S. Army Corps of Engineers are required to obtain a Section 401 water quality certification from the OR DEQ through a joint application process. BPA anticipates submitting the joint permit application (JPA) and receiving permits before the first construction season. Oregon's Removal-Fill Law, as administered by the DSL, requires a permit for removal or placement of fill in waters of the state, which includes waterways and wetlands. BPA is coordinating with DSL, as part of the JPA described in the preceding paragraph, to determine which project activities are subject to the Removal-Fill law. For construction that disturbs soils at federal facilities in Oregon, the U.S. Environmental Protection Agency delegates approval authority to Oregon Department of Environmental Quality, who would issue a National Pollutant Discharge Elimination System (NPDES) Construction Stormwater permit. This permit authorizes BPA or BPA's contractor to construct, install, modify, or operate erosion and sediment control measures and stormwater treatment and control facilities, and to discharge stormwater to public waters in conformance with all the requirements, limitations, and conditions set forth in the NPDES permit.

Resource	Potentially Applicable Requirement	Applicability
Waters, Wetlands, and Floodplain Protection	Coastal Zone Management Act (CZMA) (16 U.S.C. § 1451 *et seq*.)	The State of Oregon has an approved Coastal Zone Management Program (CZMA), which is implemented by the Oregon Department of Land Conservation and Development. Because the proposed project is in Oregon's Coastal Zone, BPA is subject to the coordination and consistency requirements of the act. The CZMA requires that "each federal agency activity within or outside the coastal zone that affects any land or water use or natural resource of the coastal zone shall be carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved state management programs" (16 U.S.C. 1456c(1)(A)). BPA believes that the proposed project is consistent with Oregon's Coastal Zone Management Program by following local comprehensive plans, complying with DSL removal-fill law, and through consistency with OR DEQ state water quality requirements. BPA would submit a consistency statement, including a detailed project description and request concurrence, prior to construction.
Air Quality and Greenhouse Gases	Clean Air Act, as revised in 1990 (42 U.S.C. § 7401 *et seq*)	Air quality impacts of the Proposed Action would be low, localized, and temporary as described in Chapter 3, Table 3-1.
Air Quality and Greenhouse Gases	Final Mandatory Reporting of Greenhouse Gases Rule (40 CFR 98)	Greenhouse gas emissions would be low, localized, and temporary as described in Chapter 3, Table 3-1.

Resource	Potentially Applicable Requirement	Applicability
Cultural Resources	Antiquities Act of 1906 (16 U.S.C. § 431–433) Historic Sites Act of 1935 (16 U.S.C. § 461–467) National Historic Preservation Act (NHPA), as amended, inclusive of Section 106 (54 U.S.C. § 306108 *et seq*.) Archaeological Data Preservation Act of 1974 (16 U.S.C. § 469–469-1) Archaeological Resources Protection Act of 1979, as amended (16 U.S.C. § 469(a)–(c) Native American Graves Protection and Repatriation Act (25 U.S.C. § 3001 *et seq*.) Indian Sacred Sites Executive Order 13007 American Indian Religious Freedom Act of 1978 (42 U.S.C. § 1996)	BPA identified and documented cultural resources in the project corridor and evaluated them for eligibility for listing in the National Register of Historic Places. BPA's compliance with these regulations is described in Section 3.2.6 of this EA. If previously unidentified cultural resources that would be adversely affected by the Proposed Action are found during construction, BPA would follow the procedures set out in Table 2-4 and comply with all applicable regulations.
Noise, Public Health, and Safety	Noise Control Act of 1972 (42 U.S.C. § 4901 *et seq*.)	Noise disturbance would be short in duration and would occur during daylight hours as described in Table 2-4.
Noise, Public Health, and Safety	Spill Prevention, Control, and Countermeasures Rule (40 CFR 112) Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. § 9601 *et seq*.) Resource Conservation and Recovery Act (42 U.S.C. § 6901 *et seq*.)	Small amounts of hazardous chemicals, such as pentachlorophenols, fuels, motor and lubricating oils, and solvents could be released into the environment by the Proposed Action or used during construction work. Use of chemicals would be controlled by implementing a Spill Prevention Plan. Any generated waste material would be disposed of according to state law and the Resource Conservation and Recovery Act. Solid wastes would be disposed of at an approved landfill or recycled.
Noise, Public Health, and Safety	Toxic Substances Control Act (15 U.S.C. § 2601 *et seq*.)	BPA adopted guidelines to ensure that PCBs are not introduced into the environment. Equipment used for the Proposed Action would not contain PCBs. Any equipment removed that may have PCBs would be handled according to the disposal provisions of the Toxic Substances Control Act.

Resource	Potentially Applicable Requirement	Applicability
Noise, Public Health, and Safety	Federal Communications Commission	There would be no interference with radio, television, or other reception as a result of the Proposed Action. BPA would comply with Federal Communications Commission requirements relating to radio and television interference from the Proposed Action if any such interference occurs.
Environmental Justice	Environmental Justice Environmental Justice, Executive Order 12898 Revitalizing Our Nation's Commitment to Environmental Justice for All, Executive Order 14096	Potential impacts to environmental justice communities are discussed in Chapter 3, Table 3-1. Although low income communities live along the project ROW, the Proposed Action would not cause disproportionately high and adverse impacts on minority and low-income populations. Most impacts from the project would be beneficial as the rebuild would provide a more reliable transmission line.
State, county, or local plan consistency	Land Use Consistency Statements (LUCS)	BPA strives to meet or exceed the substantive standards and policies of state and local plans and programs to the maximum extent practicable. As part of the JPA process, BPA has reviewed the project for consistency with local land use planning codes at the City of Astoria, City of Clatskanie, Clatsop County, and Columbia County. The project would have no impact or change to land use.

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Appendix B: Persons and Agencies Consulted

Persons and Agencies Consulted

The project mailing list contains contacts for Tribes; local, state, regional, and federal agencies; public officials; interest groups and businesses; and potentially interested or affected landowners. These groups of stakeholders have directly received or have been mailed/emailed instructions on how to access all project information made available to date, and they will have an opportunity to review the Draft Environmental Assessment. Specific entities (other than private persons) receiving the scoping notifications and this Draft Environmental Assessment are listed below by category.

Federal Agencies

National Oceanic and Atmospheric Administration, National Marine Fisheries Service
U.S. Environmental Protection Agency
U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service

Tribes and Tribal Groups

Confederated Tribes of Grand Ronde
Confederated Tribes of Siletz

State Agencies and Officials

Oregon Department of Environmental Quality
Oregon Department of Fish and Wildlife
Oregon Department of State Lands
Oregon Water Resources Department
Oregon State Historic Preservation Office
Oregon Department of Transportation
Oregon Department of Forestry

Local Government and Utilities

Columbia River Public Utilities District
Clatskanie Public Utilities District
Clatskanie Rural Fire Protection District
Cowlitz Public Utilities District
City of Astoria
Columbia County
Clatsop County

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